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IN THIS ISSUE . .

HAPPY NEW YEAR 729
ACCIDENTS AFFECT HEALTH 730
VACCINE RECORDS USEFUL 731
FUNDS FOR HEALTH 731
MORE EQUITABLE ELECTIONS 732
FIFTY YEARS AGO 732

ARTERIOSCLEROTIC MACULAR DEGENERATION
Henry L. Hilgartner 733

DIABETIC RETINOPATHIES
Henry L. Hilgartner 735

CARCINOMA OF THYROID
Alton Ochsner, Max Burton Bralliar, and Guillermo Manuel Carrera 737

SALIVARY GLAND TUMORS
Joseph K. Johnson 749

TUMORS OF STOMACH AND DUODENUM
Robert N. Cooley and Vernie A. Stembridge 754

CANCER OF COLON
R. L. Sanders 765

HEMANGIOMA OF LIVER
L. Gonzalez Cigarroa and M. E. Malakoff 768

NEWS 769
LIBRARY SECTION 773
ORGANIZATION SECTION 776
AUXILIARY SECTION 780
DEATHS 780

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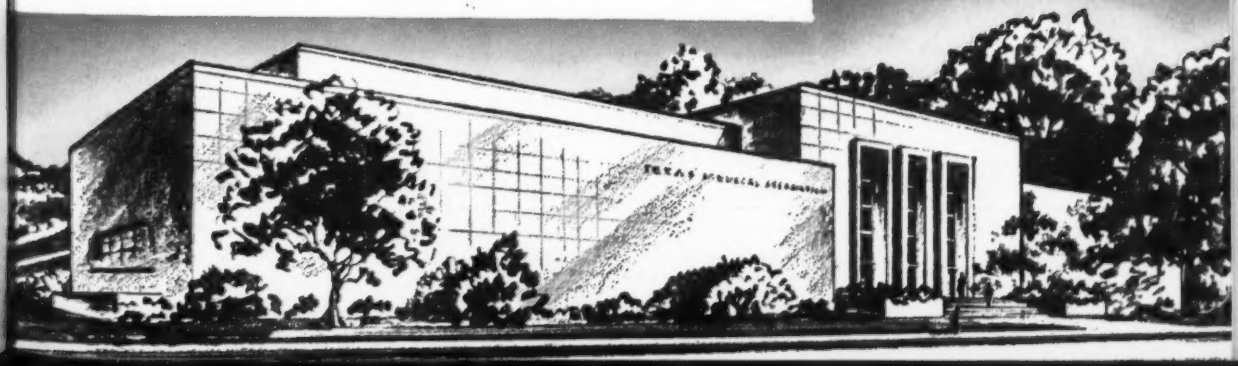

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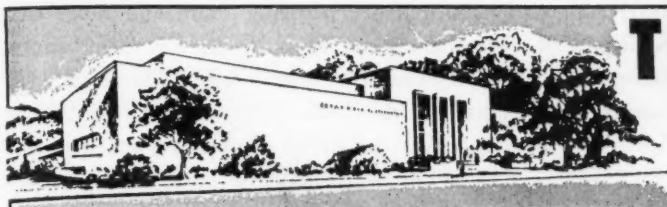

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Volume 51 Austin, Texas, November, 1955 No. 11

HAPPY NEW YEAR

Most county medical societies next month will be electing officers for the forthcoming year. This is an annual responsibility which should be entered into thoughtfully by those who vote for their favorite candidates and by those who express a readiness to accept office.

No one can deny that an organization, regardless of the caliber of its individual members, is affected by the type of inspiration, ideas, and example furnished by its officers. When officers seem ill informed and indifferent, the whole group slumps. But when officers are alert, full of ideas, and ready for action, the tone of the group changes to one of forward-looking enthusiasm.

The president, the secretary, the delegates, all of the elected officers who serve a county medical society—be it large or smaller—should be selected carefully. Personal likes and dislikes, political swapping, and strict rotation should be thrust aside to permit choice of officials who are qualified to serve and who are willing to expend time, energy, and if necessary money to do the job well. Although no member should shirk the responsibility of holding office, no one should accept a position of trust without recognizing the duties it entails and vowing to himself to do his best in that position.

The President's Page calls attention to one spot in which some weakness has been shown by members elected by their county medical societies to places of service. Undoubtedly delegates are not alone in occasionally failing to follow through their assigned tasks.

In an effort to provide help to new county society officers and remind those with longer experience in office of the services, problems, and projects of the Texas Medical Association, the Association is sponsoring a conference for county officials in conjunction with the Executive Council meeting in Austin in January. The conference, including a discussion of legislation pending before Congress, will be held Saturday, January 21, at which time certain Association committees also will be convening. The Executive Council will meet the next day, welcoming the county officers as observers.

To have a truly happy new year, county medical societies will be wise to spend part of the end of the old year naming officers who will make conscientious and able leaders during 1956.

ACCIDENTS AFFECT HEALTH

Accidents are the leading cause of death in persons between the ages of 1 and 24 years, figures compiled by the National Safety Council indicate. Last year there were 90,000 deaths from this cause plus 9,050,000 nonfatal injuries, including 320,000 permanent impairments. The accompanying table shows a comparison between deaths from accidents and deaths from disease, and it is clear that accidents cannot be dismissed lightly.

Doctors of medicine have tended to be absorbed in disease, its prevention and cure. Certainly that is a fertile field for service and for research, and the success which physicians have had is at least partially responsible for accidents being so high on the list of mortality and morbidity tables—if an infant escapes diphtheria, he may be a victim of the neighbor's automobile.

Doctors are realizing more and more that they have some responsibility in the prevention of accidents as a part of their fight to preserve good health. One recent evidence of this in Texas was the stamp of approval given by the House of Delegates of the Texas Medical Association to the Cornell automotive crash injury studies which resulted in initiation this month of reporting of injuries from automobile accidents by physicians in Travis, Smith, and McLennan Counties. By taking a little time to execute special forms which can be compared with data from police investigation of the accidents and used in statistical studies at Cornell University, these physicians are helping to design vehicles which will cut down on future accidents.

Another area of accident prevention in which physicians can be of value is in advising their patients who have specific temporary or chronic impairments which might make them more accident prone. An obvious example is the patient who has just graduated to crutches after breaking a bone. A few words of caution, a few minutes spent in instruction from the doc-

LEADING CAUSES OF ALL DEATHS

(After Accident Facts, 1955 Edition, Chicago, National Safety Council, 1955, p. 5.)

Under 1 Year	*Death Rate*
Immaturity	732
Postnatal asphyxia	465
Congenital malformations	454
Birth injuries	353
Pneumonia	336
Gastritis, enteritis, colitis	154
Accidents	112
1 to 4 Years	
Accidents	37
Pneumonia	18
Congenital malformations	13
Cancer	12
Gastritis, enteritis, colitis	6
Tuberculosis	4
5 to 14 Years	
Accidents	22
Cancer	6
Poliomyelitis	4
Pneumonia	3
Congenital malformations	2

15 to 24 Years	*Death Rate*
Accidents	61
Cancer	9
Heart disease	7
25 to 44 Years	
Heart disease	51
Accidents	48
Cancer	40
45 to 64 Years	
Heart disease	514
Cancer	271
Vascular lesions*	122
Accidents	62
65 Years and over	
Heart disease	2,814
Vascular lesions	933
Cancer	870
General arteriosclerosis	228
Accidents	205

Rates are deaths per 100,000 population in each age group for 1952.
*Affecting the central nervous system.

tor may prevent an accident. Less obvious, perhaps, is the need for persons with continuing, recurring, or increasing disability, slight though it may seem, to recognize the dangers to himself and to others if he continues the pattern of life to which he has become accustomed. Surely the possibility of accident must increase for an elderly person who insists on continuing to drive a car though his sight, hearing, and reflexes are failing. Too, it may be hazardous for younger patients with certain chronic diseases which usually can be well controlled to be operating machinery where an acute attack would endanger them or their fellows. The physician should be courageous in giving warning although it may not be popular with his patient.

Still another point at which physicians can exert influence in accident prevention is their support of and participation in organized efforts to disseminate general information about accidents and how to prevent them.

The prevention of accidents is a big business and growing bigger all the time because of this age of machines and speed in which we live—yet 30 per cent of all accidental deaths occur in homes! No one is immune to this scourge, and physicians should be glad to join hands in fighting it.

VACCINE RECORDS USEFUL

When the Salk poliomyelitis vaccine became commercially available, physicians were invited by the State Department of Health to furnish it with records on use of the vaccine, noting the batch; the name, age, and sex of the patient; whether first, second, or third injection; and date of the inoculation. The reason was to permit studies of the efficacy of the immunizations as against previous years when no preventive was available or when the preliminary field test inoculations were given and also to serve as a precaution in case particular batches of vaccine proved defective.

Dr. Henry A. Holle, state health commissioner, has expressed gratification over the voluntary response Texas doctors have made in furnishing the requested records thus far and has asked that further efforts be made to supply the data for inoculations currently being made or to be made.

This is an opportunity for physicians handling the Salk vaccine to contribute to further clarification of its place in the prevention of paralytic poliomyelitis and also to help protect their patients and themselves if questionable vaccine is uncovered.

FUNDS FOR HEALTH

Voluntary health foundations with the purpose of raising and disbursing funds for research and education in the cause, alleviation, and cure of specific ills affecting man have become a big business. Few would quarrel with the objectives of these individual organizations nor, in most instances, with the work they actually do. However, looked at as a whole, these groups are collecting and distributing money according to a pattern which is at considerable variance with the number of persons suffering from the maladies in question.

According to figures furnished by the various health foundations and charted in a recent issue of *Medical Economics*,* the picture in 1954 was as follows:

Disease	*Funds Collected* (millions)	*Victims*
Poliomyelitis	$67	70,000
Tuberculosis	$25	1,200,000
Cancer	$24	700,000
Heart disease	$12	10,000,000
Cerebral palsy	$8	550,000
Muscular dystrophy	$4	150,000
Arthritis and rheumatism	$2	10,000,000

The discrepancies may be attributed to the know-how of foundation executives, number of years of organization activity, popular appeal of the disease, and numerous other factors relating little or not at all to the actual impact of each ailment on the country and its people.

*Medical Economics, Oct., 1955, pp. 14-15.

It might be wise, however, for the physicians who are so intimately concerned with all of these diseases and for the public at large to be aware of what is happening.

MORE EQUITABLE ELECTIONS

Our nation rests on a foundation which calls for government by the people and for the people, yet with our present electoral system, it is possible for a defeated presidential candidate to receive more popular votes than the candidate elected. This freak of justice occurred when Tilden lost to Hayes in 1876, and again when Cleveland lost to Harrison in 1888, and possibly it might happen again.

Texas delegates to the American Medical Association's clinical meeting in Boston will present to the House of Delegates a resolution favoring AMA support of the Mundt-Coudert amendment to the United States Constitution. This amendment would do much toward correcting the inequities of the present system, whereby the entire electoral vote of a state goes to the candidate who may have obtained only a bare plurality of the popular vote, often far less than a majority. As Senator Karl Mundt, South Dakota, puts it, "You have this incongruous situation whereby an individual voter in the State of New York [45 electoral votes] packs an electoral college wallop 15 times as great as a citizen of the same capacity and ability living in Delaware [3 electoral votes]."

The Mundt-Coudert amendment (S. J. Res. 3, introduced in the first session of the Eighty-Fourth Congress by Senator Mundt and cosponsored by Representative Frederic R. Coudert, Jr., New York) prescribes that electors be chosen from congressional districts, thus the 21 districts in Texas would elect 21 electors. The vote in each district would determine how the elector from that district would vote.

In the September, 1955, issue of *Nation's Business,* Felix Morley states, "The essential feature of the Mundt-Coudert plan is that it ties the elector to the will of his congressional district, thus permitting a more accurate reflection of state opinion without doing any injury to the federal basis of our republic."

It is hoped that the AMA's House of Delegates will adopt this resolution and will urge favorable consideration and approval of the amendment.

50 Years Ago

Excerpts from the November, 1905, Journal.

When Dr. J. N. McCormack, chairman of the Committee on Organization of the American Medical Association, was scheduled to visit in Texas much fanfare urged members of the Texas Medical Association to hear him. An editorial said in part:

"Get every one out to hear him. Turn out the war-horses, bring out the quiet and dignified scholars, drive out the drones, lead out the sore heads, irregulars, unethical advertisers, members of all pathies, schools and persuasions, newspaper men and influential citizens.

"*Doctors for dough* will have their faces baked into harder quackery by the fire of Dr. McCormack's enthusiasm. *Doctors for disease* will feel their hearts warm before the glow of his human kindness and wide humanitarian spirit. The gap between the two will widen. Let every member of the State Association plan to hear Dr. McCormack at least once."

Urging better citizenship, the JOURNAL said editorially: "To be a political entity in 1906, you must pay your poll tax before February 1st. . . . Doctors are notoriously negligent in politics. . . . Do not wait until the last day."

Introducing a new directory of the medical profession, the JOURNAL said: "The American Medical Association is now at work on the new directory of the medical profession of the United States and Canada. The volume will appear early in 1906."

Under the heading, "Texas Medicine Sixty-Eight Years Ago," was reprinted an editorial from the Houston *Telegraph and Register,* Saturday, June 24, 1837, which deplored the number of quacks and pseudo physicians in the state. The editor's prescription for this condition read: "Establish in each county in Texas a medical society, composed of regular graduates of the medical colleges of the United States and Europe, for the purpose of examining and licensing all persons duly qualified to practice medicine."

The news section of the JOURNAL reported that the Medical Department of the University of Texas had the following enrollment: "Medicine, 182, Pharmacy, 61, Nursing 26. Total 269."

An original article by Dr. G. H. Moody, San Antonio, stated: "The attainment and perpetuation of increased nervous and mental health, which implies good physical health, is our first duty and highest possession. . . . Let this education begin with all classes, but more definitely with the school children, and their instructors." It went on to say that teachers' training should include basic principles of the recognition of disease and weaknesses in children, taking family history, and using the accumulated information to evaluate the child's capacity for work and potential weaknesses, thus keeping the child from early frustration.

ORIGINAL ARTICLES

ARTERIOSCLEROTIC MACULAR DEGENERATION
Effect of Lipotropic Substances (Lipotriad) in Treatment

HENRY L. HILGARTNER, M. D., F.A.C.S., Austin, Texas

A CONDITION which is fast becoming one of the major problems for ophthalmologists is that of arteriosclerotic changes in the retina and choroid in patients more than 50 years of age. The person who is chronologically 40 or 45 but who is 60 or 70 years of age physiologically is also becoming a frequent type of patient seeking medical attention.

Two types of treatment for arteriosclerosis have been advocated recently, (1) low cholesterol diets and (2) the administration of lipotropic compounds. These treatments depend on the hypothesis that arteriosclerosis is due to a disorder in the lipid metabolism, resulting in the deposition of lipids in the arterial wall.

Recent studies have shown that large amounts of cholesterol can be synthesized from fat, carbohydrates, or protein molecules in the body. The group of persons who ingest greater quantities of fat and cholesterol in their diets show a greater incidence of arteriosclerosis than those who have diets poorer in fats and cholesterols. By the same token, arteriosclerosis is more pronounced at autopsy in the obese than in the slender person.

Morrison found that the death rate was lower in the group of persons who ingested only 25 Gm. of fat a day than in the control group who lived on a normal diet.

Patients with visual impairment due to arteriosclerosis may be divided into three groups: (1) The arteriosclerotic person with early impairment of vision but showing little changes in the retina other than the contracted blood vessels, with pitting where the arteries cross the veins. No exudates, hemorrhages, or other pathologic changes can be found on careful examination. (2) Those cases showing some pathologic lesions along with the sclerotic vessel changes. There may be a fine pigment deposit in the macular region and one may see accompanying changes of a colloidal nature in the periphery of the fundus. These grayish-white deposits may be ring shaped, round, or assume various shapes. These colloidal deposits may be entirely absent. (3) The older age group showing a great deal of macular destruction, with massive areas of grayish exudates in various shapes scattered through the fundus. There may be pigment deposits in the macular region or not. There may be hemorrhages present also.

Read before the Section on Eye, Ear, Nose, and Throat, Texas Medical Association Annual Session, Fort Worth, April 26, 1955.

This study was made possible through the courtesy and cooperation of the Carroll Dunham Smith Pharmacal Company, New Brunswick, N. J.

GROUP 1

CASE 1.—Mrs. T. H. W., a woman aged 70, was first seen December 30, 1954. She complained of blurring of vision on reading and eyes tiring easily.

Examination.—Vision in each eye was 20/49 corrected to 20/16. The right eye externally was normal and the lens was clear. The fundus was essentially normal except for the contracted vessels and pitting where arteries crossed the veins. No exudates or hemorrhages were seen. Foveal reflexes were absent. The condition of the left eye was similar.

Progress.—During the next two months the vision deteriorated, and on February 5, 1955, vision with lenses was 20/32 and 20/20 respectively in the right and left eye. Administration of Lipotriad was started. April 11, with her correction, the vision had improved to 20/20 in each eye. The fundi showed no changes. (Fig. 1A.)

This patient responded to the lipotropic therapy very satisfactorily. In spite of her having a broken knee, with the lipotropic treatment her vision improved to 20/20 in each eye with glasses. The response to treatment in this case is typical of this group, as the patients practically all gain weight, have improved vision, and feel stronger and better.

GROUP 2

CASE 2.—Mrs. F. B. D., a woman aged 73, was first seen September 23, 1954, complaining of difficulty in seeing to read and in seeing in the distance.

Examination.—Vision in each eye of 20/49 was not improved with a lens. The right eye externally was normal. The macular region showed fine pepper-like pigmented deposits, with one larger area above the macula (fig. 1B and C). No frank exudates were seen. The left eye was similar.

Treatment.—Lipotriad, 3 capsules three times a day after meals, was prescribed.

Progress.—The patient was conscientious in taking her medicine and reported for recheck on November 3, at which time the vision had improved to 20/39 in each eye. She was seen regularly every two months. She stated at each visit that she did not think she had improved, and in February, 1955, she said that her blood pressure was quite elevated and that she had been having severe headaches. At the time of her last visit, April 15, the vision in the right eye, with correction, was 20/32 and in the left eye, 20/39.

This patient when first seen already had developed definite pigmentary changes in the macular region, but the photographs taken on April 15 show only a slight increase in the pigment deposits (fig. 1C). The mere fact that she has held her own and that the vision has improved from 20/49 in each eye to 20/32 and 20/39 in right and left eye respectively certainly should be considered satisfactory.

GROUP 3

CASE 3.—Mrs. T. S., a woman aged 73, was seen first October 29, 1953, complaining of blurred vision and deafness.

Examination.—Vision in each eye was sufficient for the patient to see fingers at 2 feet. The right eye externally was normal. The fundus showed a large raised grayish exudate in the macular region and central area. It had a crescentic shape with the ends pointing up. Numerous small pigmented deposits were seen about the central area. Scattered exudates were seen. The arteriosclerosis was advanced. Similar conditions existed in the left eye.

Treatment.—Dihydrostreptomycin, 1 Gm. daily, was administered intramuscularly for one month.

Progress.—The patient was seen again December 3. The exudates had decreased slightly and her vision had improved to permit seeing fingers at 10 feet with the right eye, but the left eye had only light perception. Lipotriad, 3 capsules after each meal daily, was prescribed.

For the next nine months, the patient was very conscientious in regard to taking her Lipotriad. She reported back on August 1, 1954, stating that her hearing, vision, and rheumatism all were improved. She was able to move about the house and yard much more easily.

The patient was last seen March 2, 1955, when the vision for the right eye permitted seeing fingers at 8 feet and for the left eye fingers at 2 feet. The exudates in the macular region of the right eye were flat, but the central area was destroyed. The left eye showed similar changes (fig. 1D and E). Her arthritis and rheumatism had disappeared completely, and she was able to hear better.

This patient when first seen showed massive exudates and areas of destruction in each retina. That the exudates diminished in size and flattened out is remarkable, but what is most amazing about this patient has been the improvement in her general health.

COMMENT

The lipotropic substances are not a panacea for the ocular changes in these older people. There are a definite number who do not tolerate the drugs. Diarrhea is one of the unfavorable reactions, nausea another. Loss of appetite is another unfavorable reaction. However, on the whole, the percentage of those patients who react favorably to the lipotropic treatment is very high. The favorable effects are not seen until the patient has been treated for at least three months.

CONCLUSION

The lipotropic substances choline, inositol, and methionine (Lipotriad) react favorably on the great majority of older patients with blurred vision due to arteriosclerosis. The hemorrhages and exudates are absorbed. The entire general condition improves, increasing the feeling of well being. One casual observation is that most of the patients with arthritis claim that their pain and discomfort is reduced by the lipotropic treatment.

There are no contraindications to this type of therapy; if the drug is not tolerated, it can be discontinued immediately without any permanent ill effects on the patients. Only a small percentage has been found who did not tolerate the Lipotriad.

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ABSTRACT OF DISCUSSION

Comments relating to this paper appear in the abstract of discussion following Dr. Hilgartner's article on diabetic retinopathies elsewhere in this issue.

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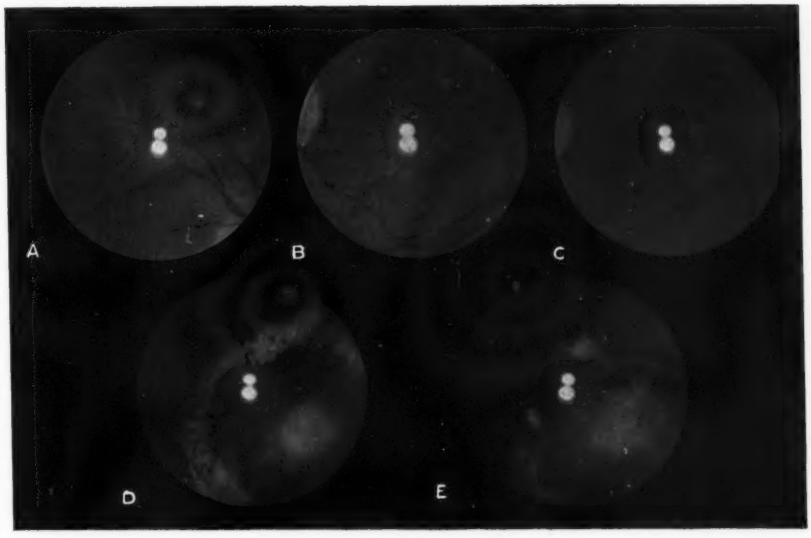

FIG. 1A. Case 1. Right eye (February 5, 1955). The arteries are somewhat contracted, and definite pitting can be seen where they cross the veins. No exudates or hemorrhages are seen.

B. Case 2. Right eye (September 24, 1954). The macular area is studded with small black pigmented deposits.

C. Case 2. Right eye (April 15, 1955). The macular area shows only a slight increase in the density of the pigment deposits.

D. Case 3. Left eye (February 24, 1954). The massive central area of raised grayish-white exudates is surrounded by a ring of smaller exudative deposits.

E. Case 3. Left eye (March 2, 1955). The exudates have flattened out and diminished in density.

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DIABETIC RETINOPATHIES

Effect of Lipotropic Substances (Lipotriad) in Treatment

HENRY L. HILGARTNER, M. D., F.A.C.S., Austin, Texas

DIABETIC retinopathies should be divided into two classifications: (1) those occurring in the juvenile or younger diabetic patient less than 45 years of age and (2) those in the older or senile diabetic more than 45 years of age. Diabetic retinopathies are definitely a new development in the juvenile group, since they never were seen as a clinical entity by the older ophthalmologists, but they are now becoming a common finding in the young person who has survived his diabetic condition 15 years or more. The senile diabetic patient undergoes slower changes, as a rule, but the hemorrhages, exudates, and retinal destruction progress similarly to those of the young group, both ending in severe visual impairment.

Discovery of the lipotropic action of choline, inositol, and methionine led some investigators to reason that these factors might influence the deposition of lipids in the vascular system as well as in the liver. Experimental work on lower animals in which atheromatous changes had been induced artificially has brought conflicting results. That the lipotropic substances are a definite aid in the treatment of diabetic retinopathies is still controversial.

White and Waskow reported that 92 per cent of 220 cases of young diabetics showed vascular disease, and retinal sclerosis occurred in 85 per cent of the patients surviving 15 or more years. Thanks to modern medicine, we now have a group of juvenile diabetics who have arrived at the age of 25 or 30 and who are showing the typical diabetic changes not formerly seen.

Siliato and others have pointed out that there is a disturbance in the fat metabolism in diabetic retinopathies. Atheromatous changes are definitely present in the retinal vessels.

Siegel recently has reported a series of cases of juvenile diabetic patients with retinopathies complicated by Kimmelstiel-Wilson disease. He directed special attention to the retinal edema and edema of the upper lids in these cases. His final conclusion was that rigid control of the diabetic condition and the lipotropic substances offered the best prognosis.

In contrast, the series which Loewe recently reported falls automatically into the senile group, as all patients were more than 50 years of age. In summary, he stated that 50 patients were benefited by adding the lipotropic substances and the citrus bioflavoids to the diabetic regimen.

This series of cases of diabetic retinopathies being reported is small (12 cases), but it definitely divides into the two categories, juvenile and senile.

JUVENILE GROUP

CASE 1.—B. J. D., a white girl aged 20, offered a history of diabetes of several years' standing, but no ocular complaints other than her myopia when she was seen January 22, 1954.

Examination.—Vision in each eye was 20/200, corrected to 20/16. The right eye externally was normal. The disk and vessels of the fundus were normal. In the upper temporal quadrant, a number of small grayish-white exudates and hemorrhages were seen. The left eye was normal except for a few hemorrhages and exudates about the macular region.

Treatment.—Lipotriad capsules three times daily were added to the patient's diabetic regimen.

Progress.—During the ensuing eleven months, the patient showed little change. On December 21, 1954, a few exudates were found in the upper temporal quadrant of the right eye, but no hemorrhages. The hemorrhages had disappeared in the left eye, but a few exudates were still seen about the macular region. The patient had not been conscientious in her lipotropic treatment.

She was seen again May 5, 1955, and the vision in each eye was 20/16 with correction. No hemorrhages were seen in the right eye. Temporal to the macular region, several small grayish exudates were still present. No other lesions were seen. In the left eye all hemorrhages had absorbed, and only a small group of exudates could be seen in the upper temporal quadrant. The patient stated that she had maintained her diabetic regimen conscientiously and had been fairly regular with her Lipotriad.

CASE 2.—J. M., a white man 30 years of age, was first seen in July, 1953, complaining of blurring of vision, bilateral.

Examination.—Vision in each eye was 20/49 not improved with lenses. The right eye externally was normal. The disk was sharply outlined and the vessels were essentially normal. The macular region showed multiple grayish-white, soft exudates, and multiple hemorrhages were seen throughout the fundus. The left eye was similar.

On December 5 the patient reported for recheck, at which time the findings in each eye were found slightly advanced (fig. 1A). Lipotriad capsules three times daily were started. The blood sugar level at this time was more than 350 mg. per 100 cc.

Progress.—During the next four months, the exudates increased in size and density, and the hemorrhages remained more or less constant. In May, 1954, the exudates definitely began to disappear, and by June they had more or less disappeared. At about this time, however, after a severe

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This study was made possible through the courtesy and cooperation of the Carroll Dunham Smith Pharmacal Company, New Brunswick, N. J.

burn on his feet, he experienced the first massive hemorrhage in the upper temporal quadrant, right eye (fig. 1B). The hemorrhage absorbed as it followed the course of gravity. After this period, he had repeated massive hemorrhages in first one eye and then the other. At the site of the first hemorrhage, the artery became definitely occluded (fig. 1C), and marked atheromatous changes progressed in the vessels of each eye. In February, 1955, he developed a severe glaucoma in the right eye, resulting in the loss of all light perception. This was due to a uveitis. During the period from June, 1954, to February, 1955, both disks showed progressive neuritic changes (fig. 1D), and the vision failed rapidly. All of the hemorrhages absorbed, and up to the present time no retinitis proliferans has developed.

This case has shown the progressive, degenerative changes that are typical of the juvenile diabetic, except that something caused the exudates to begin to disappear after five months of lipotropic treatment and the hemorrhages have absorbed without complications. This patient has never controlled his diabetes, and at one time, in December, 1954, the blood sugar level rose to 595 mg. per 100 cc. He has always been very frail, and he had several acute respiratory infections during the year.

SENILE GROUP

CASE 3.—Mrs. A. C., a white woman aged 71, was first seen March 3, 1953, complaining of blurred vision and stating she had diabetes. She had never taken insulin or really tried to control her blood sugar.

Examination.—Vision in each eye was 20/200 corrected to 20/49. The right eye externally was normal. There were multiple petechial hemorrhages scattered throughout the retina, and the vessels showed definite arteriosclerosis. The left eye was similar.

Treatment.—Rutin with ascorbic acid (100 mg. three times daily before meals) was prescribed.

During the next six months, the patient was irregular with her treatment, and her vision failed. She developed a choroiditis, and large, dense vitreous opacities appeared in each eye. The hemorrhages, however, did not increase in size and number. She was referred back to her family physician for reexamination and treatment.

On December 9 the patient reported for examination. Each fundus still showed multiple, small hemorrhages (fig. 1E). The vision had dropped to 20/200, not improved by lenses. Lipotriad, three capsules three times a day after meals, was prescribed, and a strict diabetic regimen was started.

Progress.—This patient began to show a gradual, constant improvement in every way except visually. The eye grounds for the first part of the year remained stationary. The hemorrhages slowly absorbed, and at no time did she experience a severe hemorrhage in either eye. Her feeling of well-being improved immensely. The arthritis of which she had complained was much better when she was last seen, on March 3, 1955. At that time, no hemorrhages were seen in the right eye, but a few small grayish-white exudates were present about the macular region. The left eye still showed a few residual hemorrhages, which were slowly absorbing (fig. 1F). She has been conscientious in her diabetic regimen and lipotropic treatment.

DISCUSSION

The number of diabetic cases with retinopathies treated with the lipotropic substances (Lipotriad) as an adjunct to the standard diabetic regimen is small, there being only 12 in all. Unfortunately, several discontinued their treatment and were lost track of. The 3 juvenile patients are following an identical pattern, 2 of them progressing rather rapidly with destruction and deterioration, while the third, the youngest, is slowly showing the same course.

The senile cases on the whole have maintained a satisfactory status. Unlike the 50 cases of older patients with diabetic retinopathies which Dr. Martha Folk reported, in which 15 developed retinitis proliferans after their hemorrhages, only 1 in my series progressed unfavorably (fig. 1G and H), with hemorrhages and destruction but no retinitis proliferans. In the juvenile group, the hemorrhages absorbed gradually, none of them being flame-shaped originally as Loewe described in his series.

CONCLUSION

The lipotropic substances (Lipotriad) choline, inositol, and methionine have no apparent effect on the diabetic disease per se, as to reducing the blood sugar or insulin and diet requirements. The lipotropic substances do not tend to produce retinal hemorrhages, as this is a normal diabetic characteristic. The lipotropic substances apparently help in the absorption of the retinal hemorrhages and exudates. The lipotropic substances seem definitely to improve the feeling of well being in the patients.

Diabetic control is the all important factor of diabetic retinitis.

The older diabetic patient follows a more regular and favorable course on the lipotropic therapy than does the juvenile group.

REFERENCES

A bibliography appears with Dr. Hilgartner's paper on arteriosclerotic degeneration in this issue.

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202 W. 13.

ABSTRACT OF DISCUSSION

DR. WILLIAM B. POTTER, Galveston: Dr. Hilgartner is to be commended for his painstaking review of treatment and progress of a group of patients which is fully representative of the patients which we all see each day. As he has pointed out, it is usual for the internist to give a report that findings are negative or normal on physical examination and laboratory data or, in the case of the diabetic, that "control is perfect." Yet visual deterioration continues, sometimes with detectable retinal lesions and frequently with little change in the retinal or macular picture.

This discussion is limited to diabetic retinitis and to senile macular degeneration. In both of these conditions certain of the pathologic changes seem to reverse or become remarkably slow in progress with the use of lipotropic substances if administration is accomplished prior to the development of organic change. On the basis of present in-

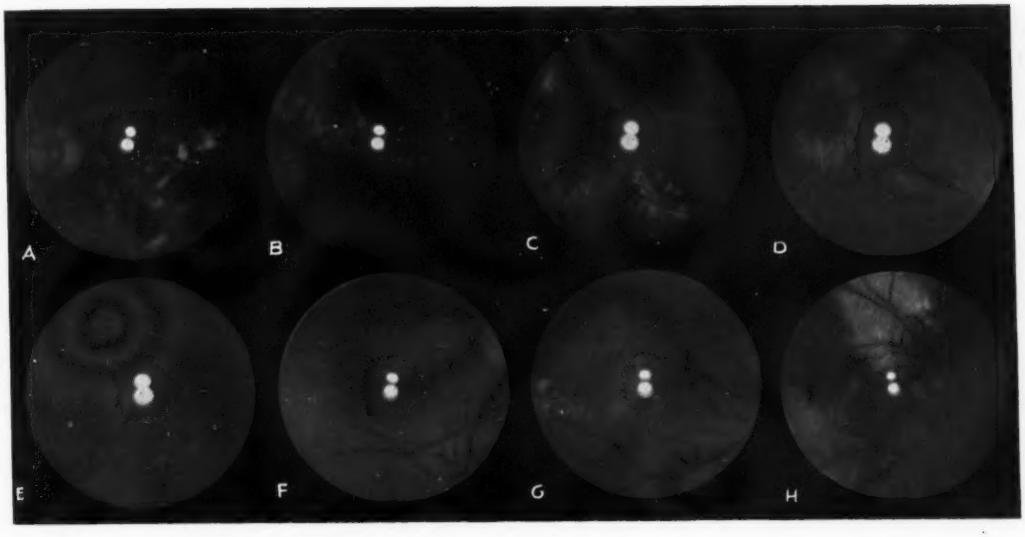

FIG. 1A. Case 2. Right eye (January 6, 1954). The optic disk is sharply outlined. The retinal vessels are normal. The exudates can be seen in the central area.

B. Case 2. Right eye (July 7, 1954). The first massive hemorrhage can be seen in the upper temporal quadrant. The exudates are definitely diminished as to size, density, and number as compared with *A*.

C. Case 2. Right eye (November 4, 1954). In the upper temporal quadrant the thread-like obliterated artery can be seen. Small round hemorrhages can be seen, and there are still grayish-white exudates.

D. Case 2. Right eye (January 7, 1955). The optic disk shows definite neuritic changes. The remnant of the hemorrhage present in *B* can be seen. Several of the vessels show the change of advanced arteriosclerosis.

E. Case 3. Right eye (March 3, 1954). Multiple small round hemorrhages can be seen scattered throughout the periphery.

F. Case 3. Left eye (March 9, 1955). The vessels can be seen, but the hemorrhages have absorbed.

G. Unreported case. Left eye (February 16, 1954). Exudates can be seen in the temporal area, and a few fine hemorrhages also are shown to the left of the light reflexes. The central area also shows grayish exudates.

H. Unreported case. Left eye (March 11, 1955). Note pigment deposits in the macular area. Complete destruction of retina and choroid is present below the optic disk. No new blood vessel formations can be seen.

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formation and experience the presence of retinal hemorrhages, retinal exudates, or retinal edema seems to establish the indication for these preparations. The presence of vitreous floaters is an additional indication for this type of treatment. It is imperative, of course, that the diabetes or the cardiovascular condition be closely managed.

Dr. Hilgartner has not attempted to evaluate his results statistically; in reviewing my own experience I find that I cannot make a statistical summary. Many patients have been followed only a short time; many patients declare that vision has improved with treatment but actual testing does not so indicate, and frequently retinal pathologic conditions seem to improve but visual acuity continues to fail. Frequently complications in the diabetic or cardiovascular condition which cause a change in the retinal picture arise.

Certainly there is no established contraindication to this type of therapy; patients almost without exception report a feeling of increased well-being, appetite, and vigor. I cannot recall any patient who could not take lipotropic preparations, which I prescribe in rather large daily amounts for the first month. Once it is prescribed, patients continue on this medication almost indefinitely. A great number of additional medications are usually given these patients in conjunction with lipotropic preparations, such as vasodilating agents, vitamin B complex, occasionally so-called vitamin P, vitamin C, and cortisone.

Certainly we have progressed in ophthalmology to the point that we no longer take it for granted that patients in this category must necessarily progress to loss of useful vision, and the full use of various therapeutic agents available at this time together with close observation and supervision of these patients is our responsibility.

CARCINOMA OF THE THYROID

ALTON OCHSNER,* M. D.; MAX BURTON BRALLIAR,† M. D.; and GUILLERMO MANUEL CARRERA,* M. D., New Orleans, Louisiana

THERE is probably more controversy concerning the frequency of carcinoma of the thyroid gland than of any other carcinoma. By some, it is considered to be an extremely rare disease; by others, it is considered to be a relatively common one. According to Sokal,[80] cancer of the thyroid represents about 0.5 per cent of all clinical cancers. He estimated that approximately 1 person in every 1,000 will develop a cancer of the thyroid sometime during his life. Sokal[81] further suggested that (1) in a population of a million people 25 cases of cancer of the thyroid will be present at any one time, (2) 1 new case will be diagnosed each month, and (3) there will be approximately 6 deaths from cancer of the thyroid each year.

DR. ALTON OCHSNER, *Chairman of the Department of Surgery, Tulane University School of Medicine, was one of the special speakers at the 1955 Annual Session of the Texas Medical Association in Fort Worth. This paper was presented for the Section on Surgery, April 25.*

The controversy concerning the incidence of thyroid carcinoma is due to a number of factors. It is frequently stated that thyroid carcinoma must be infrequent because the autopsy incidence of carcinoma of the thyroid is rare. This is not a true criterion because many patients with carcinoma of the thyroid are cured and at autopsy a malignant lesion is not found. Another reason also is that in contradistinction to some other malignant lesions most of the patients who die of carcinoma of the thyroid do not die in the hospital but die at home and do not come to autopsy. Sokal[81] estimated that out of the predicted 6 deaths of thyroid cancer per year per million population an autopsy would be done in only 1 or 2. Another important reason for the great controversy concerning the incidence of thyroid cancer is that, in contradistinction to many other lesions, it is at times extremely difficult to diagnose malignant lesions of the thyroid gland accurately and there is the possibility that hyperplastic lesions of the thyroid which occur so frequently at times might be misinterpreted as malignant lesions. As emphasized by Park and Lees,[65] unless there is a definite evidence of invasion of the capsule, distant metastases, or definite evidence of blood vessel invasion, a diagnosis of carcinoma of the thyroid probably should not be made. In a series of 66 cases originally diagnosed as cancer of the thyroid or papillary adenocarcinoma in the Royal College of Physicians laboratory at Edinburgh, reexamination showed that only 36 were unequivocally cancer, 15 were papillary neoplasms, 7 were doubtful, and 8 cases were definitely not malignant.

The incidence of thyroid carcinoma is increasing, according to some observers. Horn[39] in a series of 1,135 nodular goiters observed from 1933 to 1944 found carcinoma of the thyroid in 62 (5.5 per cent). In a later series from 1945 to 1952 there were 1,523 nodular goiters and 174 carcinomas (11.4 per cent). However, our experience is that thyroid carcinoma is

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decreasing. As previously reported by Cerise and his coworkers,[11] in a series of 580 nodular goiters observed in the Ochsner Clinic from January, 1942, to April, 1949, 51 (8.8 per cent) cancers were found. However, in a series of 775 nodular goiters observed in the same institution from May, 1949, to February, 1955, only 37 cancers were found, an incidence of 4.9 per cent. In the total series of 1,355 nodular goiters, there were 88 cancers (6.4 per cent) (fig. 1).

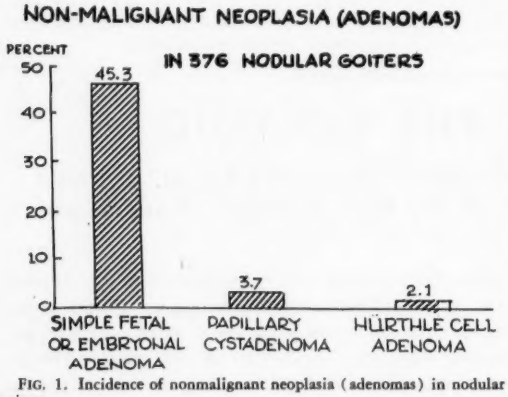


FIG. 1. Incidence of nonmalignant neoplasia (adenomas) in nodular goiters.

Probably the increase is more apparent than real because with the incidence of endemic goiter becoming less, true neoplasia of the thyroid gland, many of which are benign originally, are becoming relatively more frequent, and non-neoplastic nodules, such as involutional nodules, are decreasing. Therefore, the incidence of carcinoma in nodular goiter is relatively greater than previously.

Carcinoma of the thyroid usually begins in a previously enlarged thyroid gland as either a nodule or diffuse involvement, particularly the former. Whereas cancer of the thyroid can and does develop in non-neoplastic lesions, it is much more likely to develop in originally benign neoplasms, adenomas. In 376 nodular goiters which we observed there were 192 true adenomas (51 per cent). Of the 376 cases, 171 (45.3 per cent) were of simple fetal or embryonal adenomas; 13 (37 per cent) were of papillary cystadenomas, and 8 (2.1 per cent) were of Hürthle cell adenomas (fig. 1). Although non-neoplastic nodules (involutional nodules) are much less likely to undergo malignant change, it is impossible clinically before microscopic examination to determine whether a nodule in the thyroid is neoplastic or not. According to Sokal,[80] approximately 8 per cent of the adult population in the New England states may be expected to have palpable thyroid nodules and about 1 in 530 of these will have a cancer. He further estimated that the incidence of cancer of the thyroid gland in persons who do not have enlargement of the thyroid, either diffuse or nodular enlargement, will be about 1 in 18,499. He stated that about 0.2 per cent of all nodules of the thyroid will show cancer.

The incidence of carcinoma in all cases in which resection is done for thyroid disease varies from 1.4 per cent reported by Lange[44] to 9.7 per cent reported by Horn[39] (table 1). As emphasized by Sokal,[80] the incidence of thyroid carcinoma is higher in patients with nodular goiter. The incidence varies from 4 per cent reported by Perloff[70] in his own series to 11.4 per cent reported by Horn[40] (table 2). It is generally agreed that carcinoma occurs more frequently in solitary nodules than in multiple nodular goiters, and this was formerly our experience. In a series of 1,355 cases of nodular goiter observed in the Ochsner Clinic from January, 1942, to February, 1955, there

TABLE 1.—*Incidence of Cancer in All Thyroidectomies.*

Author	Thyroid Disease	Cancer	%
Beal and others[5]	200	15	7.5
Berkheiser[6]	739	12	2.7
Cattell and Colcock[10]	1,479	78	5.3
Crabtree and Hunter[19]	1,928	139	7.2
Horn and Ravdin[40]	3,328	159	4.7
Horn and Dull[39] (1933-1945)	2,079	62	2.9
Horn and Dull[39] (1945-1952)	1,777	174	9.7
Horn and Dull[39] (total)	3,856	236	6.1
Majarakis and others[51]	1,429	75	5.2
Stubenbord and Noehren[95]	2,106	44	2.08
Perloff and Schneeberg[70] (own cases)	888	34	3.8
Perloff and Schneeberg[70] (collected cases, 16 authors)	59,603	1,671	2.8
Wooldridge[99]	1,253	47	3.7
Lange[44]	1,000	14	1.4
Beahrs and others[4]	8,505	284	4.3
Rogers and others[78]	3,221	74	2.29
Colcock[15]	1,479	78	5.3

TABLE 2.—*Incidence of Cancer in All Nodular Goiters, Solitary and Multiple.*

Author	Thyroid Disease	Cancer	%
Crabtree and Hunter[19]	1,455	131	9.0
Perloff and Schneeberg[70] (own cases)	447	18	4.0
Perloff and Schneeberg[70] (collected)	7,149	367	5.1
Wooldridge[99] (nontoxic)	559	47	7.8
Horn and Dull[39] (1933-1944)	1,135	62	5.5
Horn and Dull[39] (1945-1952)	1,523	174	11.4
Horn and Dull[39] (total)	2,658	236	8.9
Martin[52]	214	23	10.7
Cope and others[18]	1,109	112	10.1
Beahrs and others[4]	5,679	270	4.8
Beahrs and others[4] (nontoxic)	3,247	244	7.5
Hinton and Slattery[38] (nontoxic)	262	19	7.2
Cole and others[16]	663	53	7.9
Stubenbord and Noehren[95]	1,408	42	2.9
Majarakis and others[51]	849	72	8.4
Hare[34] (nontoxic)	5,052	246	4.8
Ward[91] (nontoxic)	3,539	168	4.8
Hinton and Lord[37] (nontoxic)	184	14	7.6
Anglem and Bradford[1] (nontoxic)	550	42	7.6
Crile[20] (nontoxic)	274	20	10.9
Colcock[15] (nontoxic)	748	76	10.8
Colcock[15] (toxic)	113	2	1.8
Todd[87]	269	11	4.09
Ochsner Clinic (previous series)	580	51	8.8
Ochsner Clinic (present series)	775	37	4.9
Ochsner Clinic (total)	1,355	88	6.4

were 88 cancers (6.4 per cent) (fig. 2a). In a series of 151 solitary thyroid nodules observed from January, 1942, to April, 1949, there were 30 cancers, an incidence of 19.8 per cent. However, from May, 1949, to February, 1955, a total of 588 solitary thyroid nodules have been observed, among which were 23 cancers (3.9 per cent) (fig. 2b). Whereas previously we found an incidence of 12.8 per cent of cancers in thyroid glands with multiple nodules, the incidence in the more recent period has been 6.4 per cent (fig. 2c). It is thus seen that the incidence of cancer in multiple nodes is now higher than in thyroids with a solitary nodule (fig. 2d). Martin[52] also found a higher incidence in cases with multiple nodules. In 85 patients with multiple nodules, carcinoma was found in 15 per cent, whereas in a series of 129 with solitary nodules, carcinoma was found in 8 per cent. On the other hand all other observers have found a higher incidence in the solitary nodular goiters than in the multiple nodular goiters. The incidence varies in the multiple nodular goiter from 3.4 per cent reported by Crile[20] to 15 per cent reported by Martin[52] (table 3). The incidence in the solitary nodular goiter varies from a low of 8 per cent reported by Martin[52] to a high of 24.5 per cent reported by Crile[20] (table 4).

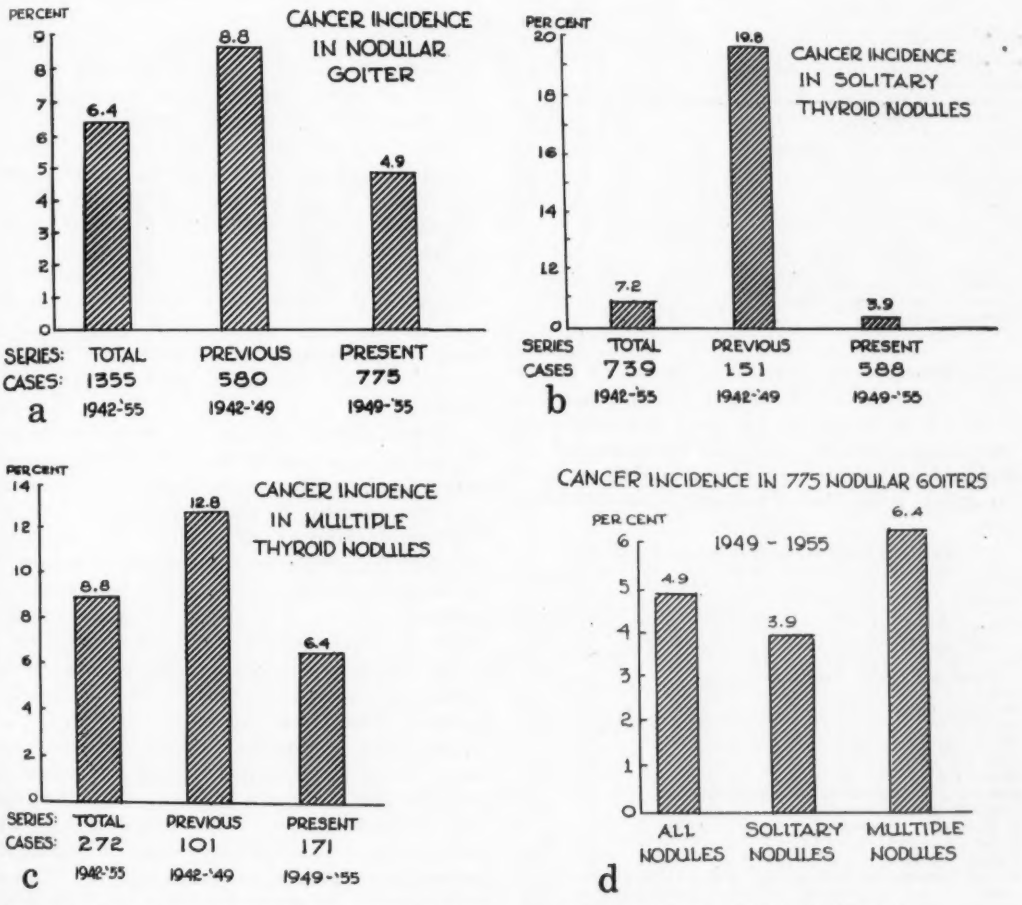


FIG. 2a. Incidence of cancer in nodular goiters according to various periods of time.
b. Incidence of cancer in solitary nodular goiters.
c. Incidence of cancer in multiple thyroid nodules.
d. Comparison of incidence of cancer in solitary and multiple nodules.

Whereas most investigators are of the opinion that carcinoma occurs more frequently in persons without hyperthyroidism, Sokal[80] has expressed the belief that it occurs more frequently in patients with hyperthyroidism. In a series of 1,803 collected cases of hyperthyroidism, 174 were of cancer (9.6 per cent), but he emphasized that this constituted no more than 0.5 per cent of all the population. He believed that

the incidence of carcinoma in hyperthyroid glands is approximately 20 times greater than euthyroid glands. He postulated that in a series of 20,000 hyperthyroid patients, 7,200 will have nodular thyroid and in this group there will be 68 cancers. Among the remaining 12,800 patients with diffusely hyperplastic glands, there will be 19 cancers. He stated that about 1 per cent of toxic nodular goiters are malignant but that the incidence of malignant change in nontoxic nodular goiters is less than 1 per cent. Colcock[15] found the incidence in toxic nodular goiters to be 1.8 per cent as contrasted with 10.8 per cent in nontoxic nodular goiters. However, in 156 cases in which a solitary nodule was found at operation there were 52 cancers (33.3 per cent). It must be emphasized that frequently when a solitary nodule is suspected preoperatively, multiple nodules are found at operation.

TABLE 3.—*Incidence of Cancer in Multinodular Goiters.*

Author	Thyroid Disease	Cancer	%
Coffey and others[14]	217	14	6.6
Crabtree and Hunter[19]	1,327	100	7.5
Majarakis and others[40] (nontoxic)	195	17	8.7
Anglem and Bradford[1]	187	9	4.8
Cole and others[16] (toxic and nontoxic)	432	18	4.1
Cole and others[16] (nontoxic)	142	14	9.8
Wooldridge[99] (nontoxic)	280	15	5.3
Martin[52]	85	13	15.0
Stubenbord and Noehren[85]	623	17	2.86
Cope and others[18]	1,053	83	7.8
Crile[20] (nontoxic)	176	6	3.4
Todd[87]	83	3	3.6
Ochsner Clinic (previous series)	101	13	12.8
Ochsner Clinic (present series)	171	11	6.4
Ochsner Clinic (total)	272	24	8.8

TABLE 4.—*Incidence of Cancer in Solitary Nodular Goiters.*

Author	Thyroid Disease	Cancer	%
Coffey and others[14]	111	24	21.7
Crabtree and Hunter[19]	128	31	24.3
Martin[52]	129	10	8.0
Majarakis and others[51] (nontoxic)	253	53	20.9
Payne[67]	154	18	12.0
Anglem and Bradford[1]	363	33	9.0
Hare[34]	1,971	236	12.0
Wooldridge[99] (nontoxic)	319	30	9.4
Cope and others[18]	156	29	19.0
Kearns and Davis[42]	155	17	11.0
Cole and others[16] (toxic and nontoxic)	231	35	15.1
Cole and others[16] (nontoxic)	143	35	24.4
Stubenbord and Noehren[85]	776	25	3.08
Crile[20] (nontoxic)	98	24	24.5
Colcock[15] (clinical)	748	76	10.8
Colcock[15] (operation)	156	52	33.3
Todd[87]	75	8	10.6
Ochsner Clinic (previous series)	151	30	19.8
Ochsner Clinic (present series)	588	23	3.9
Ochsner Clinic (total)	739	53	7.2

Sex Incidence.—There is also some controversy concerning which sex is more frequently involved in carcinoma of the thyroid gland. Most authorities have found a much higher incidence of carcinoma of the thyroid in women than in men. Wooldridge,[99] in a series of 47 cases, had 42 (90 per cent) in women and only 5 (10 per cent) in men. Crabtree[19] reported an incidence of 72.6 per cent in women; Roualle,[74] 74 per cent; Searls and his coworkers,[77] 73 per cent; Stubenford and Noehren,[85] 81.8 per cent. Ward and his associates[92] stated that the ratio in men to women is 1:2. Pemberton and his coworkers[68] observed that it is 1:1.7. Colcock[15] reported 78 cases of carcinoma of the thyroid, 57 (73 per cent) of which were in women. Of 37 cases recently observed by us, 27 (73.2 per cent) were in women (fig. 3a). Frazell and Foote[31] found carcinoma of the thyroid in 156 women, 70.8 per cent, and in 93 men, 29.2 per cent. Beahrs and his associates[4] found that in carcinoma of the thyroid the women are involved in 65 per cent. On the other hand, Beal and his associates[5] found in a series of 15 cases of carcinoma of the thyroid that 12 cases (80 per cent) were in men and only 3 cases (20 per cent) were in women. According to Majarakis and his coworkers,[51] the incidence is higher in men than in women, and Trevor[89] found that there were 3 men to every woman involved in cancer of the thyroid.

Thyroid disease generally is more frequent in women, and there is some recent evidence suggesting that one type of neoplasm at least occurs more frequently in women, namely, the Hürthle cell tumor. Gardner[33] reported 46 Hürthle cell tumors of the thyroid, 42 of which occurred in women and only 4 in men. He advanced the belief that there may be a sexual predisposition to the development of these tumors because he found in 100 consecutive autopsies on females, Askanazy cell groups in 31 per cent as contrasted with only 3 per cent in a similar group of autopsies done in men. Parmley and Helwig[66] also expressed the opinion that there may be an endocrine factor in the production of Hürthle cell tumors and proposed that as a result of the loss of ovarian function lymphadenoid goiters which contain many Hürthle cell groups may develop. Thus, it is seen that at least in one type of neoplasm, many of which are malignant, the Hürthle cell tumor is much more likely to occur in women and there is probably an endocrine basis for it.

Age Incidence.—Age incidence in carcinoma of the thyroid gland varies considerably according to the type of lesion. Generally, papillary carcinomas occur at a younger age than do the other types. As a matter of fact, a solitary nodule in the thyroid in a child is likely to be a true neoplasm and frequently is malignant. According to Payne and Strauss,[67] 55 per cent of the solitary nodules in children are carcinoma. Winship[97] found, in a series of 8 cases of nodular goiter observed in a children's hospital, all the patients of which were less than 15 years of age, that 4 (50 per cent) were carcinoma. Pemberton and Black[68] found in their series that 33 per cent of chil-

dren less than 14 years of age with nodular goiter had cancer. In 105 cases of cancer of the thyroid reported by Crile and Hazard[25] there were 40.9 per

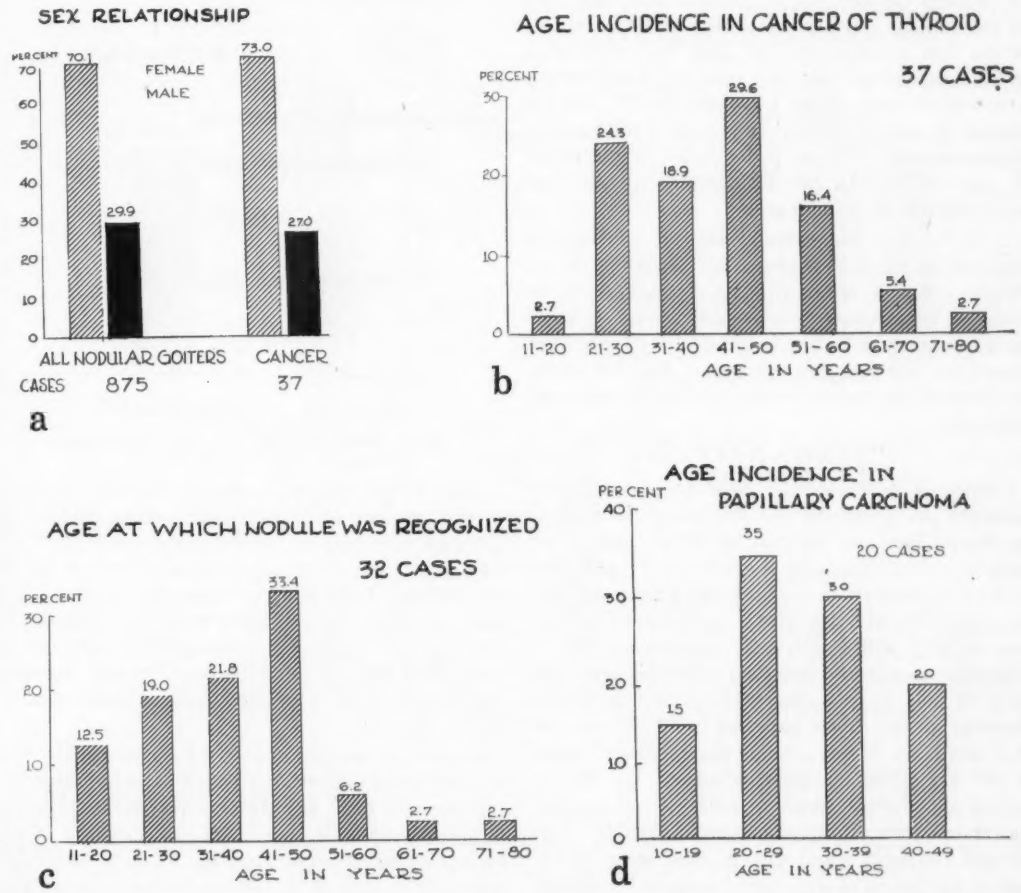


FIG. 3a. Sex relationship in nodular goiters and in cancer of the thyroid.
b. Age incidence in cancer of the thyroid.
c. Age at which nodule was recognized in cancer of the thyroid.
d. Age incidence in papillary carcinoma.

the follicular-alveolar adenocarcinomas to be 45; in solid adenocarcinomas, 49; in Hürthle cell carcinomas, 51; and in giant cell carcinomas, 61. Beahrs and his associates[4] observed that the average age of patients with papillary carcinomas is 41.9, and they found

cent of the patients less than 40 years of age, 38 per cent between 40 and 60 years of age, and 20 per cent above 60 years of age. Martin[52] stated that malignant tumors are three times more frequent than benign tumors in the thyroid in children. According to Pemberton and Black,[68] 2 to 3 per cent of all thyroid carcinomas occur in persons less than 30 years of age and 33 per cent of all papillary lesions occur in children and young adults. Frazell and Foote[31] found the median age in patients with papillary carcinomas to be 43, and they also found that 80 per cent of all cancers of the thyroid in persons less than 21 years of age are papillary. They found the median age in that 30 per cent of patients with papillary carcinoma are less than 30 years of age and 36 per cent are over 50. The average age of patients with carcinoma and adenoma was 46 years and the average age in diffuse adenocarcinomas was 54.8 years. Watson[94] found that 6 per cent of thyroid carcinomas were in patients less than 18 years of age.

In our recent series of 37 cases the greatest incidence was in the fifth decade, followed in frequency by the third, the fourth, and the sixth (fig. 3b). For the age at which the nodule was first recognized in 36 cases, the greatest incidence was in the sixth decade followed in frequency by the fifth, the fourth, the

third, and the seventh (fig. 3c). In 87 per cent the nodule was first noticed before the patient was 50 years of age. In papillary carcinomas, the youngest was 11 years, the oldest 49, and the median age was 32. Fifteen per cent of the patients were less than 20 years of age, 50 per cent less than 30 years, and 80 per cent less than 40 years (fig. 3d). In 6 cases of follicular or alveolar carcinoma, the youngest patient was 30 years of age, the oldest was 77, and the median age was 39.5 years. In 7 cases of solid adenocarcinomas, the youngest patient was 18, the oldest 65, and the median age 46. Seventy-one per cent were between 40 and 50 years of age.

It is thus seen that although there is considerable variation in the age incidence of carcinoma of the thyroid, a nodule in a thyroid in a young person is likely to be malignant and should never be disregarded, and there is approximately a 50 per cent chance that the nodule is carcinoma. For this reason the adequate treatment of these nodules is extremely important.

DIAGNOSIS

Carcinoma of the thyroid gland frequently is not suspected preoperatively. In 276 cases observed at the Mayo Clinic and reported by Beahrs and his coworkers[4] it was suspected clinically in 55 per cent. In the 174 papillary carcinomas, the cancer was suspected in 72 (41.3 per cent). In addition to this, there were 22 with lymph node involvement. In the malignant adenomas, cancer was suspected preoperatively in only 35 per cent; whereas in the diffuse adenocarcinomas, it was suspected in 80 per cent. In other words, in 50 per cent of the papillary lesions, 65 per cent of the malignant adenomas, and 20 per cent of the diffuse adenocarcinomas there was no clinical evidence of carcinoma preoperatively. Cattell and Colcock[10] stated that in their series of 78 cases of carcinoma of the thyroid a clinical diagnosis was made in less than half, and in 52 which were found in solitary nodules in the thyroid, cancer was suspected in only 15 (28 per cent). In a recent report from the Lahey Clinic, Colcock[15] stated that cancer of the thyroid was not even suspected in half of the cases in which it was found. In our recent series, 36 of which were diagnosed as thyroid lesions preoperatively, a benign lesion was diagnosed in 20 (57 per cent) (fig. 4).

Concerning the diagnosis of carcinoma preoperatively Lahey[43] emphasized that one of the most important things is to suspect it. A nodule in the thyroid which is extremely hard is suggestive of carcinoma although recent hemorrhage into a nodule may cause a marked induration. Lahey[43] also emphasized the importance of loss of the spherical outline which is so characteristic of a benign nodule due to the fact that the cancer has extended beyond the adenoma and causes the nodule to become irregular. In our recent series, 47 per cent felt a mass, 27 per cent saw

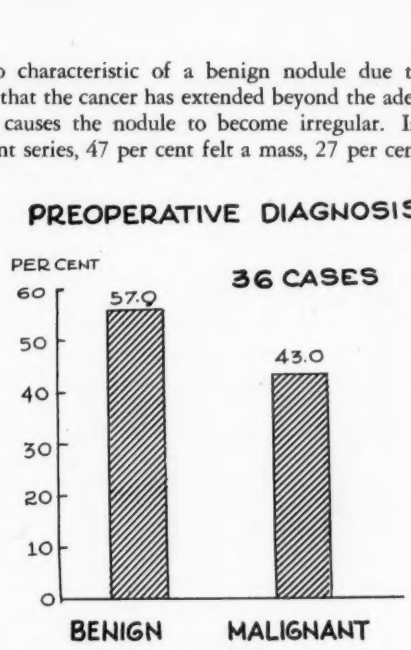


FIG. 4. Preoperative diagnoses in cancer of the thyroid.

a mass, 16 per cent had symptoms but were unaware of the presence of any thyroid swelling, and in 27 per cent there was no evidence of disease (fig. 5a). The nodule was described by the examiner as soft in 28 per cent, firm in 55 per cent, and hard in 38.8 per cent (fig. 5b). Of those with firm nodules, 75 per cent had papillary carcinomas (fig. 5c) and of those with hard nodules, 50 per cent had papillary carcinomas, 21 per cent follicular and alveolar carcinomas (fig. 5d).

Contrary to what most people believe, namely, that recurrent laryngeal nerve paralysis is an indication of carcinoma, Lahey[43] has voiced the opinion that such is not the case. He stated that the incidence of recurrent laryngeal nerve paralysis is higher in benign lesions than it is in malignant lesions, at least, the malignant lesions occurring in adenoma. Hoarseness was present in 16 per cent of our cases (fig. 6). Pemberton[68] in 244 cases of cancer of the thyroid observed in the Mayo Clinic reported that cancer was suspected in 126 (51 per cent). In 47 cases of carcinoma of the thyroid reported by Wooldridge,[99] a preoperative diagnosis of carcinoma was made in 34 per cent. Horn[39] stated that in 174 cases of carcinoma of the thyroid a preoperative clinical diagnosis was made in 78 (44 per cent).

It is of interest in the University of Pennsylvania cases reported by Horn[39] that in the period from 1945 to 1952 only 48 patients with carcinoma of the thyroid had had a thyroid nodule for a year or less as contrasted with 74 in the period from 1933 to 1944. This indicates that the profession is becoming

more cognizant of the frequency of carcinoma and suspecting nodular thyroids earlier and that the lesions are being operated upon earlier. However, in 20 per cent of Horn's series of cases,[39] a goiter had been present five years or longer. Frazell and Foote[81] found that of 139 patients with papillary carcinoma, 64 per cent had preexisting goiters; in 36 cases the primary tumors were found only after metastasis developed. In 15 per cent of the cases the nodule was less than 1 cm. in diameter; however, in most instances it was between 2 and 4 cm. In the patients with follicular and alveolar adenocarcinomas, 66 per cent gave a history of a preexisting goiter, whereas 82 per cent of the patients with solid adenocarcinoma gave a history of a preexisting goiter. In the patients with Hürthle cell carcinoma 88 per cent had a preexisting nodule. Frazell and Foote[81] emphasized that these tumors are likely to simulate benign adenomas. In 84 per cent of the giant cell carcinomas, there was a previous nodule present. These tumors are likely to be bulky and are usually easily diagnosed.

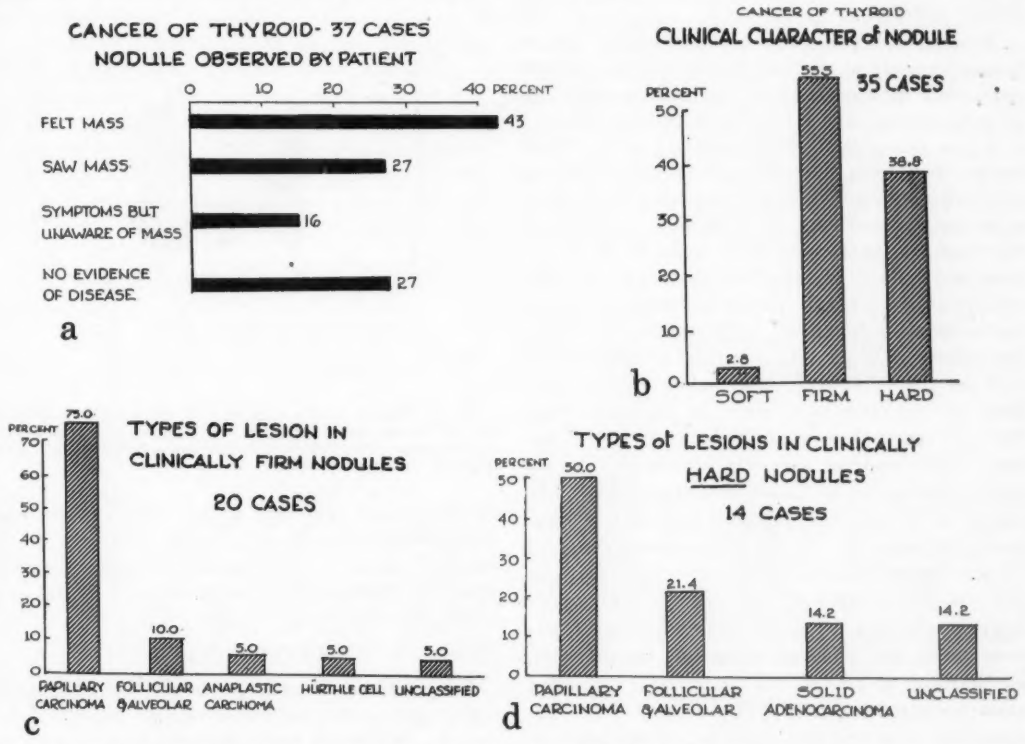


FIG. 5a. Clinical manifestations in patients with cancer of thyroid.
b. Description of nodule in cancer of thyroid.
c. Type of lesion found in cancer of thyroid in which the nodule is described as being firm.
d. Type of lesion found in cases of cancer of thyroid in which the lesion is described as being hard.

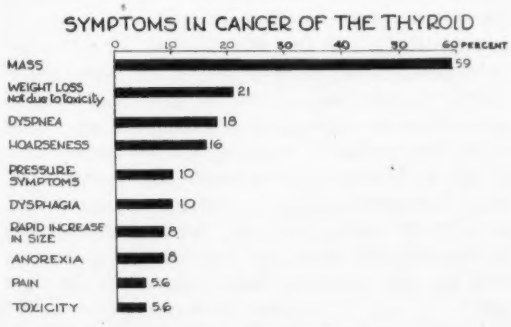


FIG. 6. Symptoms in cancer of the thyroid.

In a series of 3,027 cases of exophthalmic goiter treated and reported on at the Mayo Clinic, carcinoma was found in 13 (0.4 per cent). In a series of 2,222 toxic nodular goiters in which carcinoma was not suspected, 19 cancers were found (0.9 per cent). In 3,121 nontoxic nodular goiters in which carcinoma was not suspected, 118 were found (3.8 per cent). Sokal[81] expressed the belief that the incidence of cancer developing in unselected nodular goiters is low, less than 0.5 per cent, and that the reason the incidence is high in so many reported statistics is

because there has been selection of cases. He also offered the opinion[80] that cancer occurs more frequently in toxic than nontoxic goiters. He[80] stated that it occurs in about 1 per cent of toxic nodular goiters and in less than 1 per cent of the nontoxic nodular goiters.

Although the diagnosis of carcinoma of the thyroid cannot be made in all cases, particularly in the relatively slow growing ones, it should be suspected in all patients who have solitary nodules, particularly if it is in a young man. The possibility of the lesion being a carcinoma in a young man with a solitary nodule is considerable. As mentioned previously, it is the consensus of most observers that carcinoma of the thyroid is much more likely to be found in patients with solitary nodules than those with multiple nodules, although in our most recent series carcinoma was found more frequently in the presence of multiple nodules (6.4 per cent) than in solitary nodules (3.9 per cent). Martin[52] also found that the incidence of carcinoma was lower in solitary nodules (8.8 per cent) than in multiple nodules (15 per cent). The incidence generally runs in the solitary nodules from a low of 7.1 per cent observed by us to a high of 33 per cent reported by Colcock[15] and among the multiple nodular goiters from a low of 3.4 per cent reported by Crille[20] to a high of 15 per cent reported by Martin.[52] Of the 36 cases in our series in which a diagnosis of thyroid cancer was made during life, a benign lesion was the preoperative diagnosis in 20 (57 per cent) and a malignant lesion was suspected in 16 (43 per cent). In 35 patients who were operated upon by us, the lesion at operation was considered to be benign in 15 (42.8 per cent) and malignant in 18 (51 per cent), and in 2 the surgeon decided to wait for the microscopic examination before making a diagnosis (fig. 7).

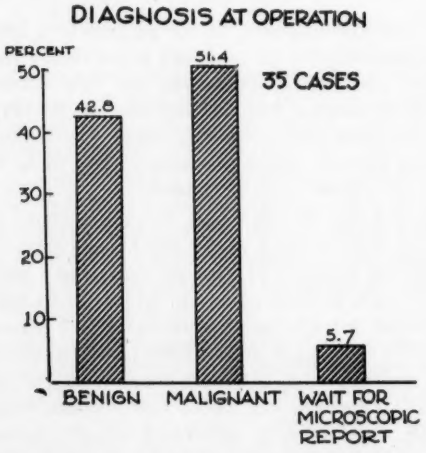


FIG. 7. Diagnosis made at time of operation by surgeon in cases of cancer of thyroid.

Cope and his coworkers[18] called attention to involvement of the delphian node, a small node on the anterior surface of the larynx just above the thyroid isthmus, which frequently is involved in carcinoma of the thyroid (fig. 8). Because of the superficial location of this node, it is readily palpable. In 13 cases of cancer of the thyroid previously operated upon the delphian node was involved in 9, and in 5 it was palpable preoperatively.

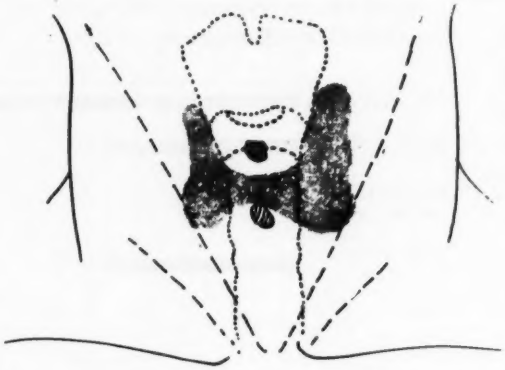


FIG. 8. Diagram showing delphian node, which is illustrated by the dark area located immediately above the isthmus of the thyroid anterior to the trachea. The shaded node inferior to the isthmus of the thyroid represents the pretracheal node.

PROGNOSIS

The prognosis in carcinoma of the thyroid depends a great deal upon a number of factors: the age of the patient, the type of lesion, and the delay in instituting therapy. In fact, frequently the first two are combined because, as Crile and Hazard[25] have emphasized, in young persons the incidence of papillary tumors is high and it is a well known fact that the prognosis of papillary tumors is good. In our recent series of thyroid cancer 20 were of the papillary type, the youngest patient was 11 years, the oldest was 49, and the median age was 32 years. Eighty per cent of the patients were less than 40 years of age. Of 14 patients living and free from disease, 10 (71.4 per cent) had papillary carcinoma (fig. 9). There is frequently a long delay from the first manifestation until definitive therapy is instituted. In our recent series the duration of the lesion was not known in 5. In the 32 in which it was known, the longest delay from first manifestation to therapy was nine years, in 11 there was no delay, and the median delay was 45 months. The delay was less than six months in 59.3 per cent and more than two years in 28.1 per cent.

Cattell[10] reported 78 cases of carcinoma of the

thyroid with no operative mortality, but 9 patients were dead in less than two years postoperatively. Cline[13] reported a five year survival rate of 29 per cent when carcinoma of the thyroid was diagnosed clinically, 43 per cent when it was diagnosed at operation, and 80 per cent when it was diagnosed on microscopic examination. Crabtree and Hunter[19] reported 68 patients with early cancers none of whom died of cancer; 9 died of other causes. Of 23 with advanced papilliferous tumors 2 died of cancer and 2 of other causes. Of 43 with advanced nonpapilliferous tumors 20 died of cancer and 6 of other causes. Of 5 with sarcomas all died of their malignant lesion. Crile[22] reported 24 patients with papillary carcinomas per cent in cases with low malignancy; in adenocarcinomas, 54 per cent; highly malignant tumors, 21 per cent. Although 70 per cent of the patients with low degree malignancy survived five years, only 33 per cent were alive at the end of 12 years.

Lahey[43] reported that 80 per cent of his patients with papillary tumors treated by radical neck dissection and subtotal removal of the thyroid followed by roentgen ray are alive at the end of five years. Martin[52] reported a five year cure rate in 225 cases of 45.8 per cent. Of 49 patients with giant cell tumors only 1 lived two years; 40 were dead within six months. Among 180 papillary tumors there was a five year survival rate of 62 per cent. Of the 61 failures, 33 patients died of papillary cancer, often with widespread metastases within five years. Thir-

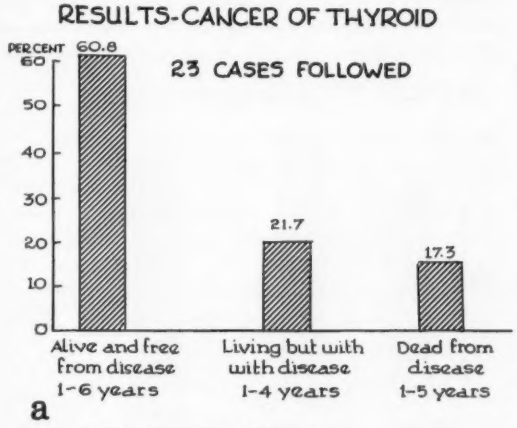
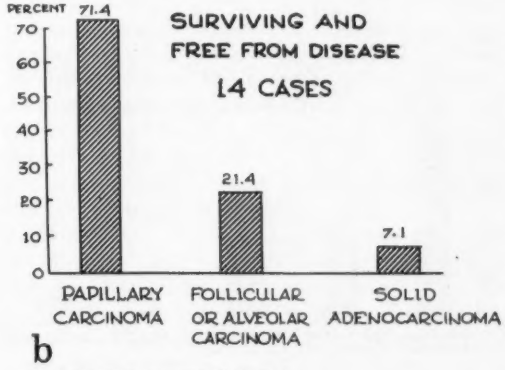


FIG. 9a. Results in cancer of the thyroid.



b. End results in cancer of thyroid.

of whom 20 survived with no recurrence for from 3 to 15 years, the average duration being 7.1 years. There were 2 deaths from other causes without recurrence, 1 patient survived distant metastasis for four years, and 1 died of cancer at the end of one year.

In addition to emphasizing that the prognosis is good in persons less than 40 years of age with carcinoma of the thyroid because of the high incidence of papillary tumors, Crile[25] stated that for patients more than 60 years of age the prognosis is bad. Of 15 patients less than 40 years of age, 14 are alive without recurrence with an average of 7.5 years, and one died of other cause. Of 13 patients past 59 years of age, only 2 are living without recurrence with an average of 6.5 years. Of 15 between the ages of 39 and 60 years, 6 are living without recurrence for an average of 7.5 years. All other patients died of their cancer. Davis[26] observed that all of his patients less than 40 years of age, with the exception of 1, had a papillary carcinoma. Horn[39] found that of 6 patients with metastasizing papillary tumors, 5 were to lymph nodes. He[39] reported a five year survival rate of 70 teen are living with papilliferous carcinomas still present in the neck or below the clavicle. Eight are dead from other causes and 7 were lost track of. Roualle[74] reported a five year survival rate of 80 per cent of the papillary carcinomas, 60 per cent of the adenocarcinomas, 15 per cent of the undifferentiated carcinomas, and an over-all survival rate in all cases of 52 per cent. Welti and his associates[96] had a five year survival rate in papillary carcinomas of 73 per cent; those with Hürthle cell tumors, 59 per cent; vesicular tumors, 60 per cent; atypical form, 35 per cent. In 23 of our cases which have had satisfactory follow-up, 60.8 per cent of patients were alive and free from disease for from one to six years (20 per cent over four years); 21.7 per cent were living but with disease, one to four years; and 17.3 per cent were dead from disease (fig. 9a). Of the 14 patients living and free from disease, 10 (71.4 per cent) had papillary carcinomas, 3 (21.4 per cent) had follicular or alveolar carcinomas, and 1 (7.1 per cent) had a solid adenocarcinoma (fig. 9b).

TREATMENT

Treatment of carcinoma of the thyroid varies according to the type of lesion. Although papillary carcinomas offer a relatively good prognosis in that approximately three-fourths of them can be cured, one cannot be complacent about the treatment of these lesions because they are in reality malignant lesions. It is true, however, that they are slow growing lesions and remain localized for long periods. Not infrequently the first manifestation of the papillary carcinoma is a metastatic lesion in the cervical nodes. In fact, for a long time, these lesions were considered to be lateral aberrant thyroids and the true nature of the condition was not suspected.

Of our 37 cases in our recent series, 54 per cent were papillary carcinomas, 21.6 per cent solid adenocarcinomas, and 16.2 per cent follicular and alveolar carcinomas (fig. 10a). Metastases were in 13 of the 37 cases (35.1 per cent), in 45 per cent of those with papillary carcinomas, and in 42.8 per cent of those with solid adenocarcinomas (fig. 10b). Nine had metastases, 5 of which were detected preoperatively, and in 3 the first manifestation was cervical lymph node metastases. Among the 9 patients with evidence of lymph node involvement preoperatively, 6 were in papillary carcinomas, 1 was in a solid adenocarcinoma, and in 2 the lesions were undifferentiated. In 36 of the 139 papillary adenocarcinomas reported from the Memorial Hospital by Frazell and Foote[31] the primary lesion was not suspected until the metastatic mass had developed; in 80 (58 per cent) there were metastases on admission of the patient, and in 18 (13 per cent) these were bilateral. Nine had chest metastases and 4 osseous metastases. Sixteen (11.5 per cent) subsequently developed chest metastases and 9 (6 per cent) developed multiple metastases.

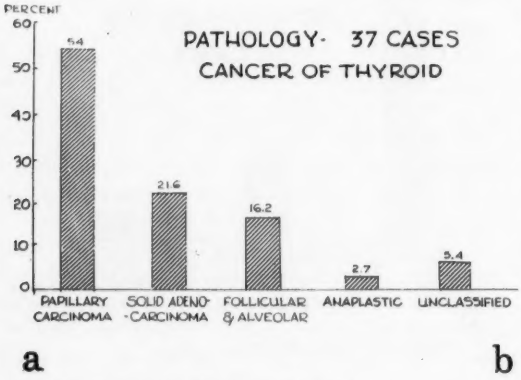
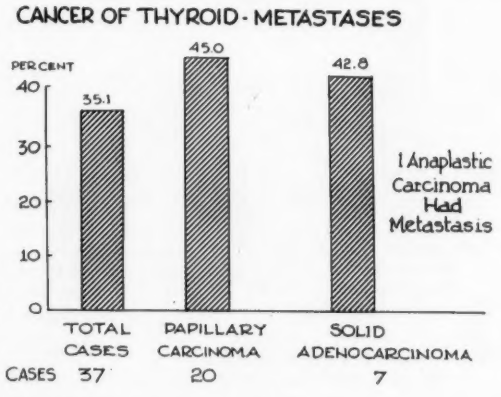


FIG. 10a. Type of lesion in cancer of thyroid.



b. Metastases in cancer of thyroid.

Frazell and Foote[31] expressed the opinion that although these lesions are slow growing, complacency has no place and that radical procedures should be done. They stated: "The failures of irradiation and limited surgery are frequent enough to justify more aggressive efforts. Subtotal thyroidectomy apparently has failed to cure many papillary tumors. This seems to be accounted for by the infiltrative nature of the tumor and the not uncommon finding of multiple foci of tumor in one or both lobes. Local excision of the nodes does not seem reasonable to us. If surgery is used in an effort to effect a permanent cure, we believe that it must be designed to remove all tumor-bearing tissue." Similar views are held by Lahey,[43] Cattell,[10] and Martin.[52]

We are of the opinion, and this is shared by many others, that in a nodular goiter in which carcinoma might be suspected, removal of the entire lobe on that side together with the isthmus should be done. Immediate frozen section should be made and not infrequently in laboratories in which frozen sections often are done a definitive diagnosis can be made at the time of the operation while the wound is still open. Careful examination of the rest of the thyroid should be made, and if the lesion is near the isthmus, most of the opposite gland should be removed. We believe that although at times it may not be necessary, it is desirable if a papillary adenocarcinoma is found in the nodule which is removed, for a radical lymph node dissection to be done immediately because of the likelihood of extension to the nodes. Frazell and Foote[31] found that 58 per cent of their patients with papillary tumors had metastases on admission and in 18 (13 per cent) there was bilateral involvement. We agree with Martin[52, 53] that a radical dissection of the cervical nodes is essential in all cases of papillary carcinoma because of the great tendency of lymph node metastases in these lesions, and it is only by the complete removal of all the lymph

nodes from the mandible down to the clavicle that all of them can be removed. In fact, in lesions located in the lower pole of the thyroid, it is probably desirable to do an anterior mediastinal dissection as recommended by McClinton.[55, 56, 57] In 1955 he[55] stated that in 16 cases of papillary carcinoma of the thyroid there were 11 with metastases to the mediastinal nodes. McCorkle and his coworkers[58, 59] similarly advocated a mediastinal dissection. Crabtree and Hunter[19] advocated subtotal resection of the nodule if carcinoma is not suspected. However, if carcinoma is suspected, all of the lobe as well as the isthmus should be taken out. They[19] did not believe that radical neck dissection should be done routinely but only when there is widespread unilateral neoplastic involvement of the cervical lymph node.

Crile[22] expressed the opinion that wide local excision of the thyroid is essential but that radical lymph node dissection is not necessary. He[21] stated: "For unilateral lesions involving the upper pole, the primary zone of metastasis is the lateral cervical region, and a satisfactory dissection and good cosmetic results can be obtained by complete removal of the isthmus, affected lobe of the thyroid, and nodes of the jugular and carotid chain. This may be done through anterior sternomastoid incision in which the muscle, recurrent laryngeal, vagus eleventh and seventh nerves are preserved. The retrothyroid and mediastinal lymph nodes can also be explored through this incision and removed if grossly involved." In papillary carcinomas he removes only the lobe involved together with the isthmus unless there is evidence of extension to the opposite side. In nonpapillary adenomas, a lymph node dissection is done in the undifferentiated tumors.[25]

Black[7] also has expressed the opinion that a radical neck dissection is not necessary, believing that removal of the anatomic areas is sufficient. He has emphasized that lesions near the superior poles spread to the lower nodes of the upper deep jugular chain; those deep in the lobe spread to the anterior superior mediastinal nodes. He stressed the importance of involvement of the nodes in the tracheoesophageal groove and stated that in 66 per cent of the 44 cases with nodal involvement these nodes were involved. He said that he does not do nodal dissection if there is no evidence of involvement because in 74 per cent of cases of papillary adenocarcinoma the nodes were not involved. Crabtree and Hunter[19] likewise do not do radical neck dissection in all cases, but remove only the nodes which are involved. Also, Duncan and his associates[29] have stated that there is no indication for radical cervical lymph node resection in patients in whom there is no evidence of lymph node involvement. Eckert and Byars[30] do a modified lymph node dissection, leave the sternomastoid muscle intact, and do not remove the submaxillary and parotid nodes. Similarly, Macdonald[47] has not considered that a radical neck dissection is necessary. He[47] has expressed the belief that a much more logical procedure would be a total thyroidectomy because in 1 in 7 cases the primary lesion will be in the contralateral lobe. He does a limited lymph node dissection with the internal jugular vein as the lateral limit of the operative field. A radical lymph node dissection is done only if at the time of operation the node which is removed and examined by frozen section shows that there is involvement; the resection does not include the submaxillary area.

Cattell[10] stated that neck dissection was done in about half of a series of 78 cases of carcinoma of the thyroid. He pointed out that this dissection is indicated in all patients with malignant adenoma which shows lymphatic invasion, in all papillary carcinomas, and in all alveolar carcinomas. In half of the cases in which lymph node dissection was done, the lateral cervical nodes were found to be involved. Cattell[10] described the technique of dissection, which is a radical one, and stated that it is done in all malignant papillary lesions and those of follicular structure as well as in patients with unilateral carcinoma simplex. Coffey[14] advocated either conservative or radical neck dissection when there is evidence of extension beyond the thyroid. Lahey[43] has indicated that in papillary cystadenomas which are entirely within the capsule without any evidence of invasion or lymphatic or blood vessel invasion a local removal of the lobe followed by roentgen ray is sufficient. However, in all adenocarcinomas and all round cell carcinomas, whether there is any evidence of involvement of the capsule or not, a radical neck dissection should be done immediately. Letton[46] has advocated doing a frozen section following subtotal resection for a nodular thyroid; if a carcinoma is found, the total gland removal is done followed by a radical neck dissection and probably superior mediastinal dissection.

Martin[52] has recommended routine radical lymph node dissection in all cases in which the neck is opened for carcinoma of the thyroid. McClintock[55, 56, 57] not only advocated radical neck dissection with total thyroidectomy but also transsternal anterior mediastinal dissection. Similarly, McCorkle and his coworkers[55] recommended superior mediastinal lymph node dissection. Scholnick and his associates[75] have suggested that a radical lymph node dissection should be done not only if there is evidence of lymph node metastasis limited to the neck, but also in the absence of metastasis if the tumor is a papillary tumor. Searls and his associates[77] have offered the opinion that a radical neck dissection should be done in all cases. Ward[92] stated that because 5 to 20 per cent of all thyroid adenomas undergo malig-

nant change, surgery is mandatory. If malignant tumors are found, neck dissection combined with removal of the homologous lobe en bloc is done. Webster and Russell[95] have advocated removal of groups of lymph nodes and suggested that a radical lymph node dissection is not necessary in all cases.

It is obvious that there is considerable difference in opinion concerning the treatment of malignant lesions of the thyroid gland. Undoubtedly the best therapy is prophylaxis which consists of the removal of all nodules in the thyroid, particularly solitary nodules, because although the incidence of cancer in our series was higher in patients with multiple nodules than in those with solitary nodules, there is considerable possibility that multiple nodules are the result of involutional changes in the thyroid and are not neoplastic. This is undoubtedly especially true in regions where goiter is endemic, but is less true in areas such as New Orleans where goiter is infrequent. However, because it is impossible for anyone on clinical examination to determine whether one or more nodules in the thyroid are neoplastic or not, it is our belief that all should be removed. The risk of the removal of a nonmalignant nodule, either an adenoma or an involutional nodule, is so small as contrasted with the relatively poor chance of cure once cancer becomes clinically obvious that the physician assumes a tremendous obligation when he advises that the nodule should not be removed. The fact that Colcock[15] found cancer in 33 per cent of the thyroid nodules which were noted at operation to be solitary illustrates the danger of watchful waiting. The younger the patient, particularly in males, the greater is the likelihood that a solitary nodule is neoplastic.

Unfortunately prophylactic therapy is not administered in all cases and there are still many thyroid cancers. The curative treatment depends upon the type of lesion. As mentioned previously, in papillary lesions, which fortunately are the most frequent, the treatment consists of hemithyroidectomy with removal of the isthmus if the nodule is in the lateral lobe, but if it is near the isthmus, a subtotal removal of the opposite lobe should be included. A radical cervical lymph node resection is done and postoperative irradiation is done. Occasionally, because of contralateral lymph node involvement, radical lymph node resection should be done subsequently on the opposite side. Although papillary carcinomas are relatively benign in that they grow slowly and generally remain limited for long periods of time, we are convinced that complacency regarding their therapy is never indicated. Only by the aforementioned radical approach can the largest number be cured.

In alveolar and follicular carcinomas of the thyroid, complete removal of the thyroid should be done, the surgeon being careful to avoid injury to the parathyroids and recurrent laryngeal nerves. These lesions are invasive and frequently invade the vessels (angio invasive) and give rise to distant metastases. If there is evidence of involvement of the capsule, the adjacent vessels should be included in the en bloc resection. If there is enlargement of the cervical nodes, a radical node dissection should be done, but this procedure frequently is to no avail because of the distant blood-borne metastases which are best treated by irradiation. Solid adenocarcinomas are treated by total removal of the thyroid and radical neck dissection, which frequently must be done bilaterally, followed by irradiation of both sides of the neck.

The small and large round cell carcinomas of the thyroid which fortunately are rare offer a very poor prognosis. They are usually treated by palliative decompression followed by intensive irradiation.

SUMMARY

A review of the literature concerning incidence, diagnosis, prognosis, and treatment of carcinoma of the thyroid gland is presented, together with experience in this field obtained in the authors' own practice.

REFERENCES

A reference list may be obtained from the authors.

HOSPITAL POLL

A majority of the public believes hospital charges are fair and that good care and treatment are received in the hospitals, the Opinion Research Corporation, Princeton, N. J., found in a survey made in New Jersey. A report on the survey appears in the September, 1955, issue of *Hospitals*.

The surveyors reported that approximately 9 people out of 10 had a favorable over-all opinion about the hospital they knew best; however, the percentage of "no opinion" answers on many of the questions was high. Nursing care and the quality of the food made the greatest impression on patients, the survey showed. Pollsters found that the public learns about its local hospitals from former patients. Nearly half the reports from these people are favorable, and unfavorable reports number 18 per cent.

Leukemia Death Rate Declines

Encouraging news concerning leukemia is reported by statisticians of the Metropolitan Life Insurance Company in a study of current trends in mortality from the disease. Since 1951 there has been a slight decline in the death rate from that disease among the company's industrial policyholders, most of whom live in urban areas. This follows a rising death rate over many years, from 1.8 per 100,000 insured persons in 1930 to 4.7 per 100,000 in 1951.

In reporting the slight decline in the leukemia death rate, statisticians point out that it is difficult to say whether the mortality has reached the level at which it may become stabilized or whether it will continue upward after a temporary interruption, as has happened in the past.

TUMORS OF THE MAJOR SALIVARY GLANDS

Modern Concepts in Management

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TUMORS of the parotid and submaxillary salivary glands have been of interest to surgeons for centuries. Heister, over two hundred years ago, advocated the surgical extirpation of such growths in preference to nonoperative treatments then in vogue. A century later the successful removal of benign tumors of these glands was a fait accompli, and Velpeau, in his *New Elements of Operative Surgery,* was already discussing techniques for total ablation of the parotid gland.

Despite the skill of surgeons in performing parotidectomy without injury to the facial nerve, lack of knowledge of the pathology of the neoplasms involved seriously handicapped them in planning an adequate procedure in each case. The result has been an unfortunately high recurrence rate not only for malignant lesions but for benign tumors as well.

Because of this frequent recurrence following surgery, pathologists have tended until comparatively recent times to regard virtually all tumors primary in these glands as possessing some degree of malignancy. Not only has the natural history of these neoplasms been poorly understood, but their actual histogenesis has been a subject of much controversy and debate. Billroth provided one of the first accurate reports of the histopathology of this group of tumors when he described the cylindroma in 1859. Virchow, in 1863, studied parotid tumors in some detail and advanced the thesis that most of them were mesoblastic in origin. His term, "enchondroma," was for many years applied to benign mixed tumors. In 1879 Wartman (and later Volkman) described these tumors as "endotheliomas," conceiving that they were of endothelial origin. Cohnheim believed that they arose from misplaced mesenchymal tissue, and Cuneo and Veau, in 1900, called them "enclavomas" on the premise that they resulted from defective embryologic development.

During the past fifty years the epithelial origin of most salivary gland tumors has come to be generally accepted. Ehrlich lent considerable support to this theory when he showed, in 1906, that saliva could convert the epithelial cells of these tumors into a gelatinous, chondroid substance. Since that time histochemical studies, as well as the tissue culture studies of Favata,[2] have provided further evidence in support of this theory. Unless one realized the tremendous histologic diversification of most of the benign tumors of these organs it might not be apparent why their origin remained so long in dispute. The complex adenoma, or "mixed tumor," is by far the commonest of these tumors, and one has only to look at microscopic sections of different areas of a single neoplasm to realize why a purely epithelial origin was so difficult to accept.

Until very recently, despite the ever-increasing knowledge of the histopathology of these tumors, there has existed a surprising scarcity of precise information regarding their natural history. This may be explained in part by the relative rarity of the tumors. As they constitute only about 1 per cent of all human neoplasms, large numbers of these lesions are not likely to come under the observation of the individual surgeon or pathologist. To supply this information comprehensive studies of large series of cases recently have been carried out in several institutions. Kirklin and others[8] reviewed the histologic material and traced the end results in 717 cases of parotid gland tumors in 1951. A similar study was made in 1953 by Buxton and co-workers,[1] and Foote and Frazell[3] have recently contributed a comprehensive monograph on this subject based on their study of more than 900 cases of tumors of the major salivary glands.

This report is based in part on a recent investigation of 180 salivary gland tumors seen at this institution.[7] Of a total of 250 cases on file in the Department of Pathology of the University of Texas Medical Branch, 180 cases were selected because of the availability of tissue for histologic review. In many instances review of the tissue resulted in altering the original diagnosis as regards the histologic type of the tumor, and in some instances as regards malignancy. Clinical records were reviewed and as many cases as could be traced were followed by the University Tumor Clinic.

For the purpose of this study a simple histologic classification was devised. It is basically similar to those of other recent authors, and all lesions encountered were readily classified. This classification, together with the numerical incidence of each tumor, is presented in table 1.

The findings of this investigation were in essential agreement with those of other recent studies. On the basis of these findings it is possible to make certain specific observations on the clinical features

From the Department of Surgery, University of Texas Medical Branch. Read before the Section on Surgery, Texas Medical Association Annual Session, Fort Worth, April 25, 1955.

of each histologically distinct group. From these observations some conclusions may be drawn regarding the appropriate therapy in each instance.

TABLE 1.—*Histologic Classification of 180 Primary Tumors of the Major Salivary Glands.*

Classification		No. Tumors
Epithelial tumors		176
Adenomas		
Simple adenoma	2	
Complex adenoma	119	
Adenoma with lymphoid stroma	6	
Carcinomas		
Mucoepidermoid carcinoma	15	
Adenocarcinoma	22	
Epidermoid carcinoma	8	
Undifferentiated carcinoma	4	
Nonepithelial tumors		4
Hemangioendothelioma	2	
Neurilemmoma	1	
Fibrosarcoma	1	

ADENOMAS

A total of 127 tumors were classed as adenomas. This is an incidence of 70.6 per cent of essentially benign tumors, a figure which is in close agreement with other recent reports. The chief features of the adenomas which serve to differentiate them clinically from the malignant tumors are as follows: (1) slow growth, (2) absence of pain, (3) absence of facial nerve paralysis, (4) soft or rubbery consistency, and (5) absence of fixation to skin or deeper structures. Three types of adenoma were encountered in this series and they will be discussed individually.

The simple adenoma, unlike tumors arising in other glandular structures, is the least common benign tumor of the salivary glands. Only 2 instances of this tumor were found: 1 of the oxyphilic, granular cell type and 1 of the acinic or serous cell type. These tumors are slow growing and tend to remain rather small, seldom exceeding 6 or 7 cm. in diameter. They are sharply circumscribed, round or oval shaped masses with a delicate fibrous capsule. They are usually pink in color and of soft, homogenous consistency. The oxyphilic cell tumor is derived from the ductal epithelium of the gland and histologically resembles somewhat the Hürthle cell adenoma of the thyroid. The acinic cell tumor, on the other hand, is composed of large, pale, vacuolated cells of the type that form the secretory acini of the gland. These adenomas are extremely rare, and it is not known whether they ever undergo malignant change. Treatment consists of simple excision, care being taken to include the capsule.

Complex adenomas are the "mixed tumors" of common parlance. They constitute the large majority of the benign tumors of salivary glands. Out of 127 adenomas in this series, 119 were of this type. The literature regarding this distinctive neoplasm is as bulky as the tumor itself.* The term "complex adenoma," suggested by Foote,[3] seems preferable to such fantastic designations as "adeno-myxo-chondro-fibro-sarcoma" which have been applied in an effort to describe in a single word the complex histologic features of the tumor.

These tumors present a somewhat nodular or lobulated appearance and are moderately firm and rubbery in consistency. On cut section they are seen to have a glistening, somewhat sticky surface. Areas of softening or necrosis may occur within the tumor. A rather tough, fibrous capsule usually surrounds or partly surrounds the tumor, but microscopically this "capsule" is often seen to be breeched by minute projections of neoplastic cells. Complex adenomas occur much more frequently in the parotid salivary gland than in the submaxillary or sublingual glands, but they may be encountered in any location where so-called "aberrent" salivary tissue is found, that is, in the lip, hard and soft palates, and so forth.

Clinically the tumors follow a protracted, essentially benign course, producing no pain or facial nerve paralysis. Except for their bulk they inconvenience the patient very little. Although they may occur when the patient is of almost any age, complex adenomas commonly make their appearance during the fourth and fifth decades of life. The average age at which patients sought treatment in this series was 44.6 years, and in the average case the tumor had been present for 7.1 years. They are more common in females than in males, a ratio of about 2 to 1. The question of frank malignancy developing in a preexisting benign mixed tumor is still unsettled. It is safe to say, however, that a small percentage of these tumors, if left in situ or if inadequately excised, eventually will develop malignant features.

The adenoma with lymphoid stroma or cystadenoma lymphomatosum is a very uncommon, benign tumor occurring exclusively in the parotid gland. Fewer than 200 such tumors have been reported in the world literature. This adenoma is often referred to as "Warthin's tumor," though it was first described by Albrecht and Arzt in 1910, nearly 20 years before Warthin's report. Six tumors of this type were found in the series studied here. Like the simple adenoma, this tumor is usually small (seldom more than 5 or 6 cm. in diameter) and well circumscribed. It is round or ovoid and usually soft and cystic in consistency. The color is reddish-brown with mottled areas of gray lymphoid tissue. Cystic spaces filled with slimy brown fluid may be seen. Because of the soft, rather fluctuant consistency of these tumors and because of their tendency to occur

*McFarland[3] cited a case in which the tumor weighed 22 pounds.

in the lower pole of the parotid, they are often mistakenly diagnosed as branchial cysts or abscesses.

These adenomas are much more common in men than in women (about 8 to 1) and tend to appear during the fifth and sixth decades of life, the average age of patients being 54 years in this series. They have been reported to recur repeatedly following inadequate excision. On the basis of present knowledge of these tumors it is doubtful that they ever become malignant.

CARCINOMAS

Of the 180 tumors studied in this series there were 49 which were classed as carcinoma, an incidence of 20.7 per cent. It was possible to classify these tumors into four histologic types, each presenting fairly constant, well-documented clinical features.

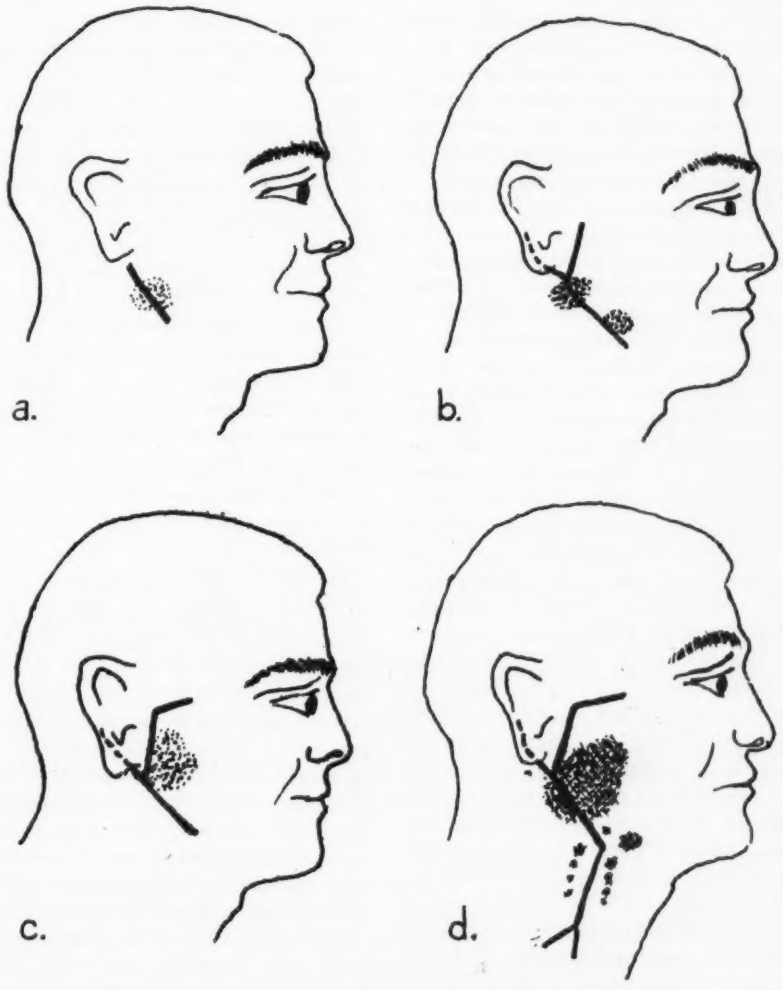

FIG. 1a. A short, linear incision over the angle of the jaw suitable for simple excision of a small, benign tumor in the lower pole of the superficial lobe of the parotid gland.

b. Extension of the incision is suitable for excision of benign adenomas of the submaxillary gland, and the addition of the Y on either side of the ear adapts it for extirpation of larger, complex adenomas of the parotid gland.

c. A short horizontal extension of the anterior arm of the Y gives additional exposure for larger complex adenomas.

d. The same incision as in *c* with the addition of an inverted Y to permit homolateral neck dissection. This would be the incision of choice in most malignant lesions.

Features of importance in the differential diagnosis and common to all the carcinomas include: (1) relatively rapid growth, (2) pain, (3) facial nerve paralysis, (4) stony hard consistency, and (5) fixation to skin and deep structures, often with ulceration.

The mucoepidermoid carcinomas were identified

as a distinct histologic entity by Stewart and Foote[10] in 1945. These authors reported an incidence of 6.4 per cent in the 700 salivary gland tumors which they studied. In the University of Texas series this type accounted for 8.9 per cent of the 180 tumors studied. The term "mucoepidermoid" derives from the fact that these tumors characteristically contain two distinct elements in varying proportions: a mucinous element, present in small "lakes" or as intracellular inclusions similar to those seen in mucinous carcinoma elsewhere in the digestive tract, and an epidermoid element composed of squamous epithelium.

The mucoepidermoid tumor clinically presents a firm to stony hard consistency in contrast to the more resilient, rubbery complex adenoma. As these carcinomas are locally quite invasive there may be fixation of the tumor to skin and deeper tissues. There is usually little evidence of encapsulation seen at operation, and local invasion and infiltration of surrounding structures is common. The average age of the 16 patients in this series was 42 years, 12 of them being men. This carcinoma varies considerably in its clinical behavior. Most tumors of this type, while highly destructive locally, are slow to metastasize. An occasional fulminating form may occur, however, and both regional and distant metastases contribute to a rapidly fatal outcome.

Adenocarcinoma is the most common malignancy reported in the major salivary glands. Twenty-two cases occurred in this series. In this group there were two separate histologic types which merit special consideration because their clinical behavior differs somewhat from the usual pattern in adenocarcinoma.

The cylindroma type is derived from the ductal epithelium and is of rather common occurrence, though only 3 proved cases appeared in this series. It occurs somewhat more often in the submaxillary gland in contrast to other tumors, benign and malignant. Two of the 3 cases seen in this series involved the submaxillary gland. Pain is a common clinical manifestation in this neoplasm as a result of early invasion of the perineural lymphatics. Facial nerve paralysis may be seen when the parotid is involved. Although grossly the cylindroma may show invasive features suggestive of malignancy, the microscopic characteristics are often deceptively benign. In the past many such tumors have been mistakenly called "mixed tumors." The cylindromas are rather slow in growth and spread chiefly by the lymphatics and by local invasion. Pulmonary metastases may be seen occasionally in late or terminal cases. Despite their slow growth, these carcinomas pursue a relentless course, and unless treated adequately they will cause death.

The acinic cell adenocarcinoma was first recognized as a distinct histologic entity by Buxton[1] in 1953. Since then a detailed report of a number of cases has been made by Godwin, Foote, and Frazell.[5] As the name indicates, this tumor is derived from the acinar epithelium of the gland. It is considered to be a relatively rare neoplasm, and only 2 were encountered in our series. It is important that this tumor be identified histologically because it tends to follow a far more benign course than most other adenocarcinomas. Clinically they are slow growing, painless, and of a somewhat softer consistency than is usually seen in the carcinomas. They may be fairly well encapsulated in the early case, and are slow to invade the surrounding structures. Regional metastases are rare and usually occur only in long standing cases. These tumors occur chiefly in the parotid gland. The average age of the 2 patients in this series was 53 years, and both lesions occurred in men.

Except for the two exceptionally unaggresive forms described above, adenocarcinoma of the salivary gland behaves as a highly malignant tumor, invading contiguous structures early and metastasizing both locally and distantly. In general the rate of spread can be correlated with the lack of cellular differentiation in a given tumor, and the prognosis is poor in all except the cylindroma and the acinic cell adenocarcinoma.

Epidermoid carcinoma occurs as a primary tumor in the salivary gland as a result of squamous metaplasia of the ductal epithelium. It is probably a rare disease, though the true incidence is difficult to assess because of the frequency with which squamous cell carcinoma primary in the skin or buccal cavity may spread or metastasize to the salivary glands. Clinically epidermoid carcinoma primary in the salivary glands does not differ from squamous cell carcinoma elsewhere in the body. Ulceration, pain, and regional metastases are common, and the outlook is generally poor, especially as this tumor is most common in elderly, senile patients. All instances of epidermoid carcinoma involving the submaxillary and sublingual glands were eliminated from this series because of the uncertainty of their being primary in these glands. Only 8 convincing cases of primary epidermoid carcinoma of the parotid were included, and of these there were 2 instances of the unusual malignant lymphoepithelioma described by Buxton.[1]

Undifferentiated carcinoma was reported 4 times in the group under consideration. Two were in men and 2 in women, the average age of the patients being 62 years. All 4 cases terminated fatally in a relatively short time, indicating the uniformly poor prognosis usually associated with this form of cancer.

NONEPITHELIAL TUMORS

Nonepithelial tumors arising primarily in the salivary glands are quite uncommon. Melanoma occasionally has been reported as arising in the parotid gland, as have primary, malignant lymphomas. In the series reported here there were only 4 nonepithelial lesions, 3 of which were benign. Of these there were 2 hemangioendotheliomas, both of which were benign, occurring in the parotid glands of infant girls. One instance of benign neurilemmoma was seen in a 13 year old girl. This tumor arose in a branch of the facial nerve within the substance of the parotid gland. One fibrosarcoma occurred in the parotid gland of an 11 year old girl. This tumor pursued a rapidly fatal course.

TREATMENT

Modern concepts of treatment according to the various histologic types of the salivary gland tumors have been clearly stated by Buxton, Maxwell, and French.[1] More recent contributions by Frazell[4] and by Jerome[6] are in essential agreement regarding treatment. These principles of management will be discussed under the headings of benign tumors and malignant tumors.

Benign tumors, with the exception of the complex adenomas, can be treated by simple excision. So long as the tumor can be excised with the capsule intact there is little chance of recurrence. In the case of the complex adenoma, however, a slightly different situation exists. Because of the frequent minute extensions of tumor beyond the limit of the capsule, recurrences are notoriously frequent when the adenoma is merely shelled out of its bed. It is now generally agreed that excision should be made by sharp dissection including a small margin of the normal gland tissue. In the case of large tumors involving the superficial lobe of the parotid, lobectomy is probably the safest and easiest procedure. In rare instances, where the deeper lobe is involved, total parotidectomy (with preservation of the facial nerve) may be required. This is more likely to be the case when the tumor is recurrent, as recurrent "mixed tumors" are poorly circumscribed and often have multiple extensions to all parts of the gland. At this institution the use of the square-wave electric stimulator aids in identifying the smaller branches of the facial nerve, and with adequate exposure nerve injuries are rare. Total excision of the submaxillary gland is probably indicated in all benign lesions in this location.

Malignant tumors, with few exceptions, demand a more radical approach than do the adenomas. The exceptions would include some mucoepidermoid carcinomas of a low order of malignancy, and the acinic cell adenocarcinoma. These tumors may be adequately treated by wide local excision with preservation of the facial nerve. Patients thus treated should be closely observed for a number of years because of the possibility of late recurrences or cervical metastases.

All other carcinomas demand an uncompromising, radical approach. Preservation of the facial nerve should not be considered if there is the slightest possibility that it has been invaded. Microscopic invasion of the perineural lymphatics may be seen even when there is no gross indication of involvement. Where the major branches of the facial nerve must be sacrificed in the course of a parotidectomy, repair by nerve grafts or fascial slings is indicated.

The question of node dissection in the neck cannot be answered categorically. It is probably indicated in all cases of malignancy involving the submaxillary gland. In carcinoma arising in the parotid it is indicated in the highly malignant tumors previously described wherever clinical judgment suggests the probability of metastases.

Postoperative radiation is not usually indicated where an adequate primary operative procedure can be accomplished. Possible exceptions would be in the case of an undifferentiated carcinoma or the rare malignant lymphoepithelioma. Radiation as primary therapy may be considered in the very old, debilitated patient with epidermoid or undifferentiated carcinoma.

SUMMARY

The pathology and natural history of neoplasms arising in the salivary glands has been reviewed. Significant clinical features observed in a detailed study of 180 such tumors are discussed, and current concepts regarding the management of these cases are presented.

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BENIGN TUMORS of the STOMACH and DUODENUM
Their Radiologic Appearance

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DURING the past 30 years a number of excellent papers have dealt with the pathology, the radiologic appearance, and the clinical significance of benign tumors of the stomach. Among these should be mentioned the contributions of Eliason and others,[7] Rigler and Ericksen,[20] and Colp and Weinstein[6] and the extensive review of Palmer.[18] Also, a detailed description of the radiologic characteristics and the technique that should be employed in detecting these tumors is regularly included in standard works dealing with the radiology of the gastrointestinal tract (Buckstein,[4] Golden,[10] and Schinz and others[24]). However, differences of opinion exist as to the relative frequency of occurrence of benign tumors of the stomach and also as to their significance as a cause of clinical signs and symptoms.

It is generally thought that most of these tumors are potentially malignant, but the incidence of malignant change in the various species of primary benign tumors is unknown. Of particular interest is the evidence concerning the origin of gastric carcinoma from benign adenomatous polyps (Steward[25] and Benedict and Allen[3]) and the association between pernicious anemia, gastric carcinoma, and benign polyp (Rigler and others[21]). Also, there has been comment on the frequency with which polyps are associated with atrophic or hypertrophic gastritis and/or hypochlorhydria. In addition benign tumors of the stomach may cause slow intermittent or massive gastric hemorrhage, pyloric obstruction, ulceration, partial intussusception of the stomach into the duodenum, and mild to moderate symptoms of dyspepsia and indigestion.

Benign tumors of the duodenum are much less common than those of the stomach. They have been diagnosed almost entirely by gastrointestinal roentgen-ray examination (Golden,[9] Waters,[28] and Hannon and others[12]), and in most instances they were associated with rather mild and indefinite symptoms. Buckstein,[4] however, reported 1 case in which there was high grade obstruction of the duodenum secondary to a fibromyoma in the transverse portion.

MATERIAL

During the 62 year period between January 1, 1893, and December 31, 1954, there were 75 benign tumors of the stomach and 10 benign tumors of the duodenum recorded in the combined files of the Department of Pathology of the University of Texas Medical Branch Hospitals. Eighteen of the stomach tumor cases were found in the surgical pathology section, and the other 57 came from the autopsy records. Four of the 18 cases from the surgical records were discarded since they represented tissue referred from outside the hospital solely for diagnosis. This leaves a total of 71 cases of benign tumor of the stomach for study. The distribution and relative frequency of this group are shown in table 1.

TABLE 1.—*Seventy-One Tumors of the Stomach, 1893-1954.*

Cases	Clinically or Radiologically Significant	Incidental Finding at Operation or Autopsy	Total
Submucous cystic tumor		1	1
Myxoma	1		1
Benign tumor of stomach		1	1
Lymphatic cyst		1	1
Fibromas		8	8
Lipomas	2	1	3
Leiomyomas (2 cases multiple tumors)	2	18	20
Aberrant pancreas		1	1
Adenomatous polyps (single–25, multiple–10)	10	25	35
Total	15	56	71

Of the 10 duodenal tumors, 9 were recorded in the autopsy files. The other case represented tissue referred to the surgical pathology section for diagnosis only. Consequently, it was discarded. The frequency and distribution of these 9 cases are shown in table 2.

TABLE 2.—*Benign Tumors of the Duodenum, 1893-1954.*

Cases	Clinically or Radiologically Significant	Incidental Finding at Operation or Autopsy	Total
Adenomatous polyps	1	8	9

This series of tumors was studied by various members of the Department of Pathology. A microscopic examination was made of each tumor, and in many instances multiple sections were examined. Serial sections were not used, and no unusual efforts were made to examine microscopically all parts of every tumor. There was some difference in terminology over the years. The word "papilloma" was formerly used to describe finger-like tumors projecting inside the stomach. After reading the description of these tumors in detail and particularly the microscopic de-

From the Departments of Radiology and Pathology, University of Texas Medical Branch.

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scription, it was decided that "adenomatous polyp" would have been a better term. This term is applied to the polypoid epithelial benign new growth that involves the mucous membrane and subadjacent tissue of the stomach and duodenum. Care has been taken so as not to include any mass or a so-called "pseudopolyp" which might be part of a hypertrophic gastritis. Also, the word "polyp" has not been applied to any malignant lesion.

Reference to table 1 indicates that a large proportion of benign tumors of the stomach are incidental findings at autopsy. In the present series there were 57 benign stomach tumors in 9,870 autopsies, giving a general incidence of .57 per cent. In the combined material (surgical and autopsy) there were 71 benign tumors and 424 other tumors of the stomach giving a total of 495 cases of tumors of all kinds seen over a 62 year period. Thus the incidence of benign tumors was 14.3 per cent or a ratio of 6 malignant to 1 benign tumor. However, if only those benign tumors that were of clinical or radiologic significance are considered, the incidence of benign tumors is only 3.0 per cent of all stomach tumors. This difference between what may be termed "absolute incidence" and clinically or radiologically detectable incidence has led Rigler and Ericksen[20] to suggest that radiologists are missing a sizable number of benign tumors in their daily practice.

The data collected from this series of cases do not permit an accurate appraisal of the diagnostic performance of the radiologist. Gastrointestinal roentgen-ray examination was carried out in 21 of the 71 cases of benign stomach tumor and in 1 of the 9 cases of duodenal tumor within a period of nine months prior to operation or autopsy. These examinations usually were performed in a routine conventional manner, and many of the examinations were carried out by the resident staff. It long has been a routine in the Department of Radiology to obtain mucosal spot films with both compression and air contrast. Air contrast is obtained by placing the patient in several positions so as to cause the gas which is usually present within the stomach to distend mildly first the fundus and then the antrum and duodenal cap. It cannot be too strongly emphasized that films showing good mucosal detail are essential for the detection of small benign tumors of the stomach.

In the 21 cases that had a gastrointestinal series within a period of nine months before operation or autopsy the diagnosis of stomach tumor was made correctly 15 times. In another case a radiolucent shadow within the duodenal cap was overlooked although an accompanying carcinoma of the stomach was correctly diagnosed. In the other 5 cases the tumors were 1 cm. or less in size. Three of these "missed" tumors were in the fundus of the stomach, and in one of these cases there was an accompanying carcinoma that may have drawn the examiner's attention away from a small adenomatous polyp in the fundus. Whether any of these missed tumors would have been a threat to the patient's health is, of course, undetermined. A comparison of radiologic with gastroscopic findings would throw further light on the radiologist's performance.

Rigler and Ericksen[20] found 25 benign tumors in a series of 4,236 routine roentgen-ray examinations. The incidence of benign tumors among these cases that were considered to be abnormal was 1.6 per cent. This incidence of benign tumors might be considered as a base line of comparison by which the radiologist in a crude way can appraise his own performance.

ADENOMATOUS POLYPS OF STOMACH

There are 35 cases in this group, 10 of which were of multiple and 25 of which were of single polyps. Of the 25 single tumors, 5 were discovered primarily by gastrointestinal roentgen-ray examination, and the diagnosis was confirmed following operative removal of the tumors. In only 2 cases were there symptoms that could be attributed to a single polyp, and in 1 of these there was some relief of symptoms following removal of a large polyp from the pylorus (case 2, fig. 1b). Twenty other single polyps must be regarded as incidental autopsy findings; an accompanying atrophic gastritis was found in 2 of these cases, hypertrophic gastritis was found in a third case, and in another a small polyp was found in the stump of the stomach, the lower part of which had been resected for a carcinoma. In view of the possibility that grossly benign but microscopically malignant polyps might have been listed as carcinomas (which is the correct terminology), the records of all cases of malignant tumors of the stomach seen during the past five years were reviewed (116 carcinomas, 2 sarcomas). In this group no mention was made by the pathologist of a polyp or polyps accompanying the malignant tumor other than the single case mentioned previously. This is in contrast to the observations of Stewart[25] in which he found 22 per cent of the cases of single polyps and 35 per cent of the cases of multiple polyps were associated with carcinoma.

There were 5 cases of multiple polyps (2 or more). One of these (case 4) was a long-standing case of pernicious anemia with achlorhydria. In 2 other cases there was a definite anemia of the hypochromic type which may have been due to chronic recurrent hemorrhage. In 2 cases there was a hypochlorhydria and in 2 other cases there was no gastric analysis.

The incidence of benign polyp or polyps in cases of pernicious anemia was investigated by collecting

all of the cases of pernicious anemia in the combined pathologic files. Of the 21 cases thus found, only 1 was of multiple stomach polyps (case 4) and none were of a carcinoma.

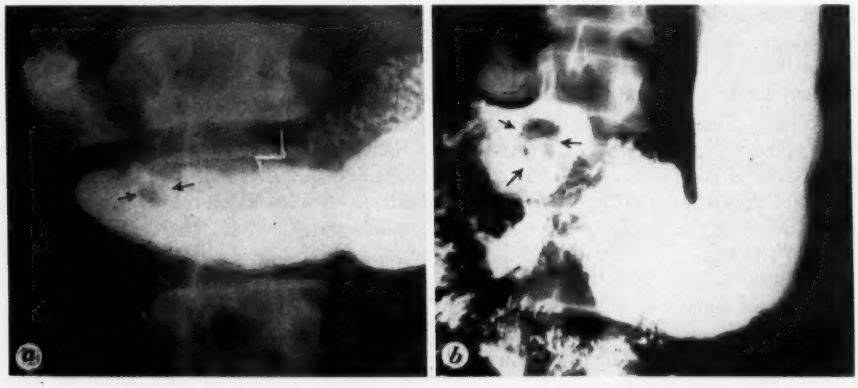


FIG. 1a. Case 1. Single adenomatous polyp in the antrum. The smooth rounded shadow is radiolucent in contrast to the surrounding barium.

b. Case 2. Large adenomatous polyp which originated in the pylorus but prolapsed into the duodenal cap. There was no evidence of pyloric obstruction.

Gastric polyps appear during gastrointestinal roentgen-ray examination as radiolucent shadows within the surrounding barium. Their contour is rounded or oval, or in the larger tumors it may be lobulated. The shadow may be noticeably movable, and in some instances in which the pedicle is long, movement over a considerable area is possible. The pedicle may be visible but should not be confused with a mucosal fold.

Obstruction is not common, but the tumor may be larger and near the pylorus or an elongated pedicle may permit prolapse through the pylorus. Obstruction was not a prominent feature of any of the cases in the present series.

The importance of obtaining spot films of the mucosa before the stomach is filled with barium cannot be exaggerated. In at least 2 cases the polyp was missed at fluoroscopy and was visible on only one film in which by good fortune some mucosal detail was visible.

Illustrative Cases

CASE 1.—L. C., a white woman, 42 years old, had multiple abdominal complaints including indigestion, gas, and mild epigastric pain. A cholecystogram showed a poorly functioning gallbladder with stones. Fluoroscopy failed to show any abnormality in the stomach or duodenum, but films (fig. 1a) showed a rounded, smooth, radiolucent shadow in the prepyloric region which remained constant on repeated examinations. This lesion was seen by gastroscopy. There was no evidence of pernicious anemia, and a gastric analysis was not done. A benign adenomatous polyp 1.2 cm. in diameter was removed from the prepyloric region. The stalk was 3 mm. in diameter. A cholecystectomy was performed.

The polyp was apparently asymptomatic.

CASE 2.—S. G., a 29 year old Mexican woman, had had mild abdominal pain for about six months, and for three months there had been occasional attacks of nausea and vomiting. There was a pronounced hypochlorhydria. At fluoroscopy the examiner first noted a lobulated radiolucent mass in the pyloric antrum. The stomach walls were pliable. A short time later the mass was definitely within the duodenal cap (fig. 1b) and thus was mobile and probably had a pedicle. There was no evidence of obstruction. The impression was "possible polyp in the duodenum." At operation a 4.5 by 2.5 by 1 cm. polyp was removed from the pylorus. There was gastric mucosa on one side and duodenal mucosa on the other. There was no evidence of malignancy. The patient was relieved of her symptoms.

This tumor resembled the papilloma described by Waters[28] and might be classified as a duodenal tumor.

CASE 3.—L. K., a 63 year old white woman, complained of intermittent burning and pain in the epigastrium for the past five years. A previous gastrointestinal roentgen-ray examination is said to have shown a peptic ulcer. Later a cholecystogram showed evidence of gallstones, and the patient entered the hospital for treatment of her gallbladder disease. Another gastrointestinal examination showed sizable radiolucent areas, most prominent along the greater curvature, which could represent enlarged stomach rugae or polyps (fig. 2a). However, there was a small radiolucent area in the upper two-thirds of the body of the stomach (fig. 2b). Also a mucosal pressure film (fig. 2c) demonstrated several oval-shaped radiolucent areas that were obviously larger than rugae.

A gastric analysis revealed no free acid, but following the injection of histamine there was 24.5 per cent of acidity.

The patient was mildly anemic with 3.21 million red blood cells per cubic millimeter and 9 to 8 Gm. of hemoglobin per 100 cc. The stools contained occult blood. The blood smears showed nothing unusual other than evidence of mild hypochromic anemia.

At operation a 2 by 1 cm. polyp was found lying free in the stomach. Another polyp was removed from the stomach wall and others were seen inside the stomach. It

was the surgeon's impression that these small tumors were pseudopolyps similar to those of polypous gastritis. However, microscopic examination showed a structure typical of a benign adenomatous polyp. There was some cellular infiltration of the stomach mucosa suggestive of gastritis, but this was minimal.

The patient was asymptomatic when she left the hospital, but there has been no follow-up.

In 1943, successful gastroscopy was performed, and several small cherry red polyps were noted; in addition there was an atrophic gastritis.

The patient was followed continuously in the clinic until 1945, and then was not seen again until 1950, when he returned with a complaint of marked weakness and shortness of breath; there had been no liver therapy since 1945. He was placed on large doses of liver and vitamins, and his anemia and general condition improved. A gastrointestinal roentgen-ray examination in 1950 showed several rounded

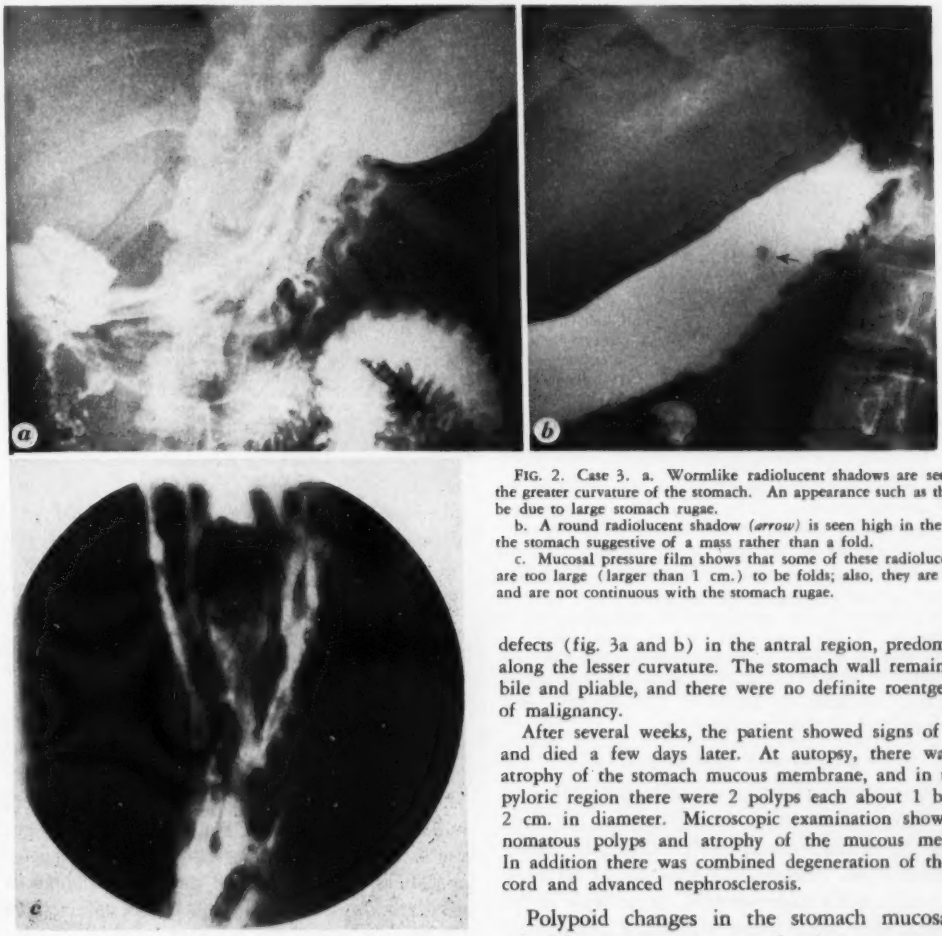


FIG. 2. Case 3. a. Wormlike radiolucent shadows are seen along the greater curvature of the stomach. An appearance such as this could be due to large stomach rugae.

b. A round radiolucent shadow *(arrow)* is seen high in the body of the stomach suggestive of a mass rather than a fold.

c. Mucosal pressure film shows that some of these radiolucent areas are too large (larger than 1 cm.) to be folds; also, they are rounded and are not continuous with the stomach rugae.

defects (fig. 3a and b) in the antral region, predominantly along the lesser curvature. The stomach wall remained mobile and pliable, and there were no definite roentgen signs of malignancy.

After several weeks, the patient showed signs of uremia and died a few days later. At autopsy, there was some atrophy of the stomach mucous membrane, and in the prepyloric region there were 2 polyps each about 1 by .5 by 2 cm. in diameter. Microscopic examination showed adenomatous polyps and atrophy of the mucous membrane. In addition there was combined degeneration of the spinal cord and advanced nephrosclerosis.

Polypoid changes in the stomach mucosa were noted by roentgen-ray examination ten years before death. It is impossible to evaluate the changes that occurred in these polyps during this time since the original films were discarded. There was no evidence of a malignant change in these tumors at autopsy. This is the only case of pernicious anemia in this series.

CASE 4.—M. A., a 65 year old Negro man, was first seen in 1940 with a complaint of "fainting spells and weakness." There was a marked anemia, and the blood examinations were typical of pernicious anemia. A gastric analysis found no free acid and 6 degrees of acidity following histamine injection. Gastroscopy was unsuccessful, but a gastrointestinal roentgen-ray examination showed "the rugal pattern in the stomach was disrupted in the pyloric region and gave the appearance of multiple polypoid tumor masses in this area." The patient was given liver extract and responded, but signs and symptoms of combined degeneration of the spinal cord developed.

CASE 5.—J. L. R., a 58 year old white man, complained of dull aching pain in the left side of the chest for one year prior to admission. There were no definite complaints referable to the gastrointestinal tract. A gastrointestinal roentgen-ray series (fig. 4a) showed a cluster of radiolucent

shadows near the greater curvature in the body of the stomach. This portion of the stomach wall was pliable and peristalsis was uninhibited. Figure 4b shows that the radiolucent shadows are easily obscured by filling the stomach with the usual amount of barium.

There was a slight anemia (4.26 million red blood cells per cubic millimeter), and occult blood was found in the stool on several occasions. There was a definite hypochlorhydria. Gastroscopy showed that at least 6 polyps of varying size were present on the body of the stomach predominantly near the greater curvature. At operation the polyps were easily identified, and a subtotal gastric resection was done. Examination by the pathologist showed several sessile polyps varying in size from 8 to 14 mm. Microscopic examination showed a few inflammatory type cells throughout the polyps. The pathologic diagnosis was benign polyps with chronic inflammation. Figure 4c is a microscopic section through one of these polyps.

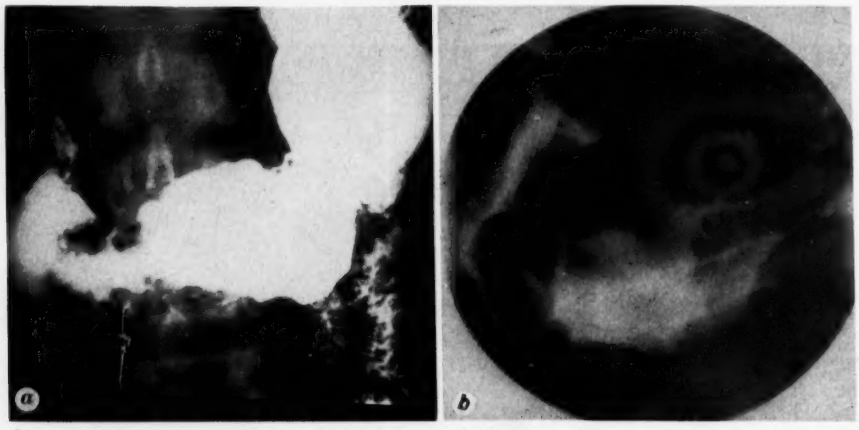


FIG. 3a and b. Case 4. This patient was known to have had pernicious anemia and polyps in the stomach antrum ten years before the present films were exposed. The polyps are seen as radiolucent shadows along the lesser curvature of the antrum. A mucosal pressure film of the antrum is pictured in *b*.

LEIOMYOMAS

Leiomyomas are second to adenomatous polyps in frequency in this series, and this incidence has been recorded by others (Buckstein,[4] Rigler and Ericksen,[20] Stout,[26] and Abrams.[1] Of the total of 20 cases, 18 were apparently asymptomatic or at least undetected until they were found at autopsy. (One-half of Antonie's series[2] were asymptomatic.) In 15 of these cases at autopsy the tumors were 1 cm. or less in size and therefore must be regarded as strictly incidental findings. At autopsy of 2 other cases, however, the tumors were much larger, and they may have caused symptoms that were not mentioned in the record. In 1 of these, the tumor was in the fundus near the esophageal orifice and measured 6.5 by 5 by 4.5 cm. The other tumor was exogastric and pedunculated and arose from the greater curvature of the stomach near the antrum. It measured 7 by 5 by 4 cm. and undoubtedly could have been felt by careful abdominal palpation. The third tumor was about 2 cm. in size and probably could have been detected by gastrointestinal roentgen-ray examination.

The most spectacular tumor in this series was a large leiomyoma that originated in the cardia of the stomach near the esophageal orifice (case 7, fig. 5c and d). This patient's predominant symptom was pain that had been present for at least a year. It is surprising that there was so little dysphagia since the tumor produced considerable pressure on the lower esophagus (fig. 5d).

Another leiomyoma (case 6, fig. 5a and b) was discovered by gastrointestinal roentgen-ray examination. It was resected although it apparently was not the cause of symptoms.

Calcium is frequently deposited in leiomyomas of the stomach as determined by microscopic examination (Meissner[16] and Rieniets[19]). Occasionally the calcium may be sufficiently massive to be detected by radiologic means. Leigh[14] has reported such a case in which the calcium was deposited in an irregular fashion in the fundus of the stomach. One of the present authors also has seen a case not included in this series in which the calcified tumor in the fundus was visible on a conventional chest film.

Leiomyomas typically originate within the wall of the stomach. Consequently the small and medium sized tumors elevate the mucosa and have a smooth rounded semi-circular or semi-elliptical appearance. With pressure films mucosal folds may be seen to extend to the margins of the tumor.

The larger leiomyomas may ulcerate although this change did not occur in any of the tumors in this series. The ulcer crater may be deep and at times consists of deep pockets or crevices leading into the

depths of a partially necrotic tumor. Barium may enter these crevices during gastrointestinal roentgen-ray examination and extend to such a distance that extravasation or leakage outside of the stomach is suspected.

found to be encapsulated with the stomach wall along the greater curvature. It was excised and measured 3 by 2.4 by 2.5 cm. Microscopically it was typical of a leiomyoma.

The radiolucency of this tumor at fluoroscopy momentarily suggested gas filled bowel. It could not be seen on the plain film, however. It is probable that lipomas cannot be differentiated from leiomyomas

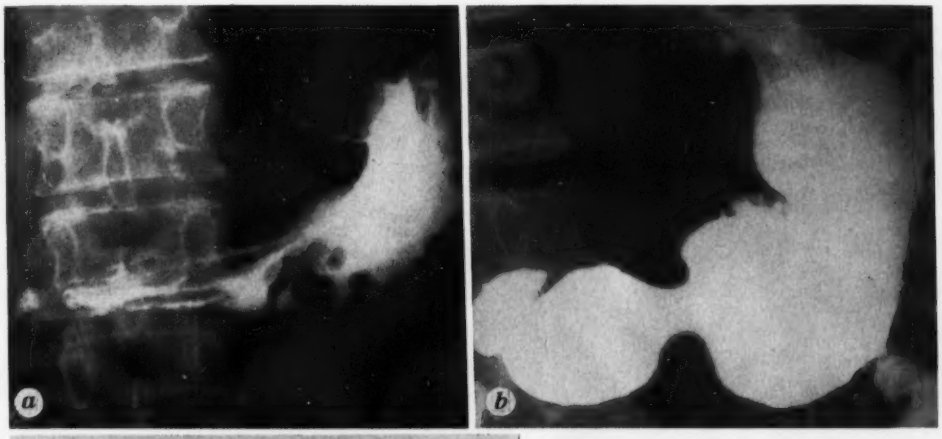


FIG. 4. Case 5. a. There are one large and several small radiolucent shadows along the greater curvature of the body of the stomach.
b. When the stomach was filled with barium, these shadows could no longer be seen. Peristalsis passes through this area without inhibition.
c. Photomicrograph of one of the smaller polyps. x 5.

on the basis of radiolucency. It is doubtful if the tumor was the cause of symptoms.

CASE 7.—C. R. D. (referred by Dr. H. A. Haverlah, Palestine), a 31 year old white man, complained of burning epigastric pain for one year preceding admission to the hospital. The pain was worse at night and usually could be relieved by taking milk. There had been occasional nausea, and about three weeks before admission there had been a severe spell of vomiting. There was slight dysphagia.

A chest film (fig. 5c) showed a large rounded mass posterior to the heart; its lower contour was lost in the diaphragmatic shadow. Examination of the esophagus with a barium swallow (fig. 5d) indicated that the mass caused deviation of the esophagus anteriorly and to the left and there was moderate esophageal obstruction. The fundus of the stomach could not be seen clearly. A tentative diagnosis of neurofibroma of the posterior mediastinum with extrinsic pressure on the esophagus was made. A second choice was a benign tumor of the lower portion of the esophagus.

At operation (by Dr. A. W. Harrison, Galveston) 11 cm. of the lower esophagus and the upper one-third of the stomach were resected, and the remaining portion of the stomach was anastomosed to the esophageal stump.

The spherical tumor was 11 cm. in diameter and had a smooth, glistening surface without evidence of ulceration. It extended for a considerable distance along the lesser curvature of the stomach and apparently originated from the region of the cardia. The final diagnosis was tissue from the cardia of the stomach, leiomyoma.

This is the largest tumor in this series. It is re-

Illustrative Cases

CASE 6.—E. M. W., a 73 year old white woman, complained of right flank pain for seven years associated with bloating, belching, and frequent attacks of indigestion. Excretory urography showed a moderate hydronephrosis in the right and 2 or 3 calculi within the right renal pelvis.

Gastrointestinal roentgen-ray examination showed an oval-shaped, strikingly radiolucent mass on the lesser curvature about two-thirds of the distance from the fundus to the pylorus (fig. 5a and b). There seemed to be a slight aberration in the peristaltic motility in the region of the mass, but there was no obvious fixation of the stomach wall. The mucosal folds over the mass were flattened, but rugal folds could be seen extending up to the edge or boundary of the tumor. No mass could be felt with the bare hand. The impression obtained from the roentgen-ray examination was "benign tumor in the wall of the stomach." The possibility of a lipoma was suggested. At operation, the tumor was

markable that it was not ulcerated. Symptoms were probably due to pressure.

BENIGN TUMORS OF NEUROGENIC ORIGIN

It is worthy of mention that no benign tumors of neurogenic origin occurred in the series. This can be compared with Buckstein's series[4] in which there were no neurogenic tumors in 104 cases of benign tumor, and Stout's series[26] of 110 tumors of which 3 were of neurogenic origin. Palmer[18] wrote of two predominant histologic types, namely, schwannomas and the neurofibromas, although there are many minor histologic variations in these groups. Neurofibroma may occur only in the stomach, or the stom-

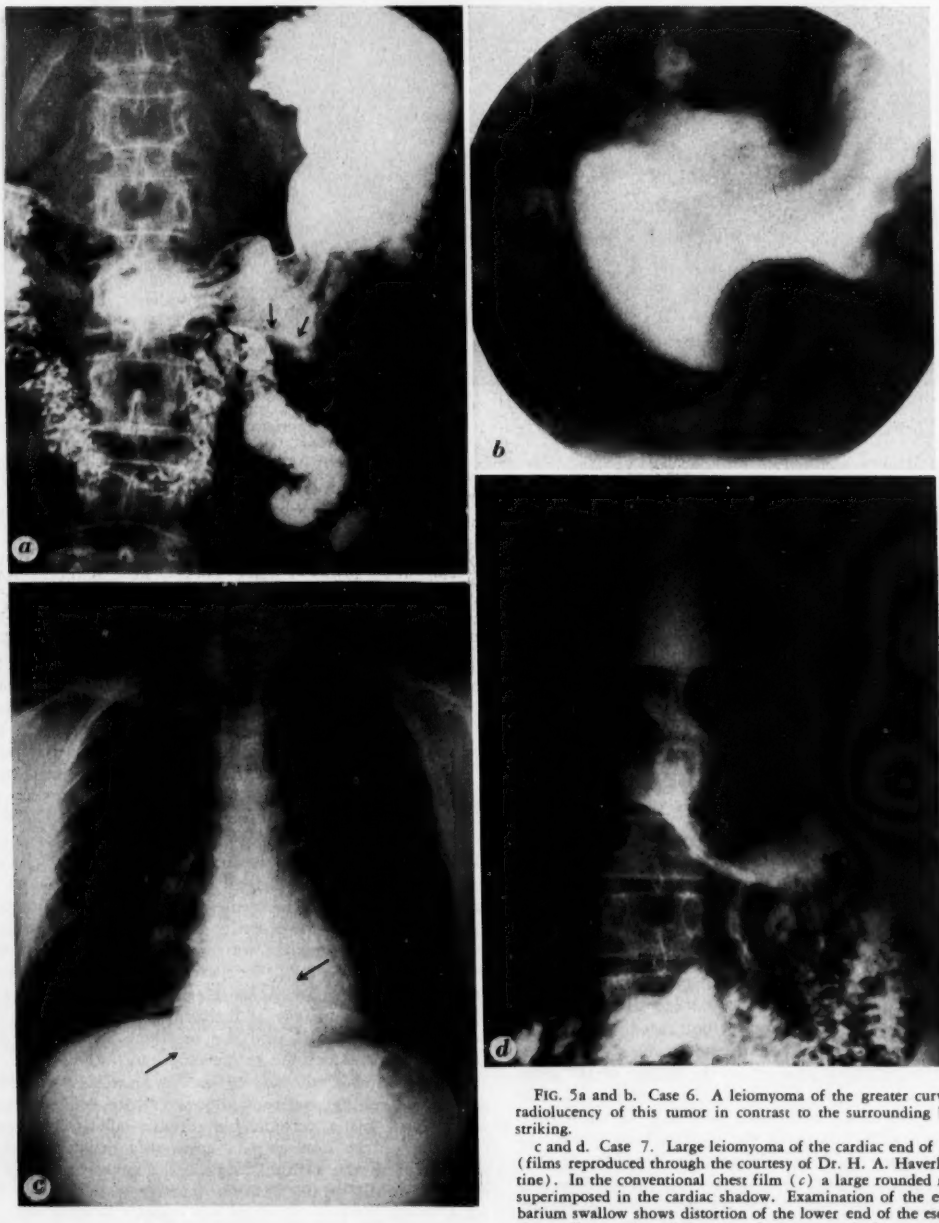


FIG. 5a and b. Case 6. A leiomyoma of the greater curvature. The radiolucency of this tumor in contrast to the surrounding barium was striking.

c and d. Case 7. Large leiomyoma of the cardiac end of the stomach (films reproduced through the courtesy of Dr. H. A. Haverlah of Palestine). In the conventional chest film (*c*) a large rounded mass is seen superimposed in the cardiac shadow. Examination of the esophagus by barium swallow shows distortion of the lower end of the esophagus and the cardiac portion of the stomach due to extrinsic pressure.

ach tumors may be associated with a generalized neurofibromatosis. These tumors have no distinguishing characteristic which would permit a differentiation from other benign tumors by radiologic means. Palmer[18] stated that the schwannomas tend to occur singly and occupy a submucous location. The larger tumors are prone to ulcerate and form deep excavations or craters. Of course, these craters may fill with barium, and such may occur with any other type of large solid tumors.

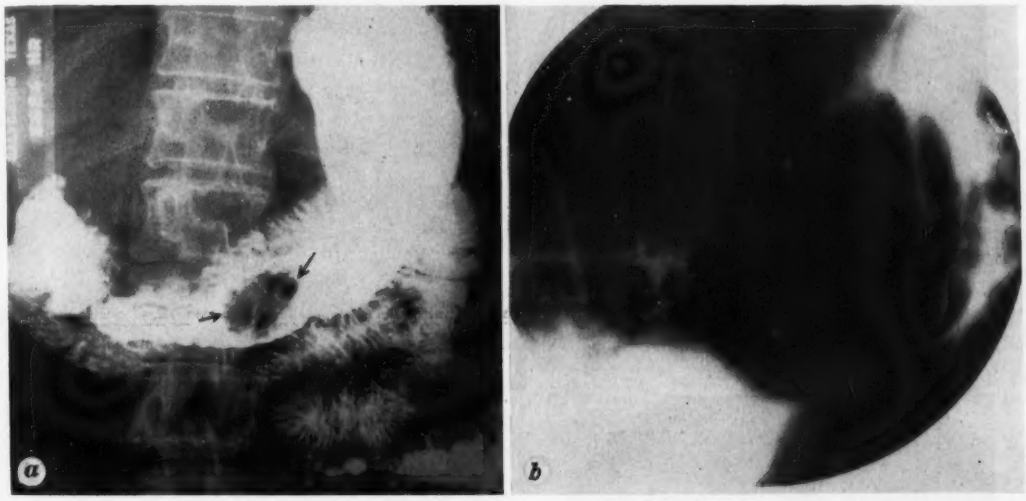


FIG. 6. Case 8. Lipoma of the posterior wall of the body of the stomach.
a. A sizable radiolucent shadow is seen in the body of the stomach.
b. A pressure film shows that the tumor is smooth in contour, and mucosal folds extend to the edge of the tumor.

FIBROMAS

Reference is made here to those benign tumors that are composed predominantly of fibrous tissue although other types of tissue may be present. In the present series 5 tumors were classified as fibromas, 2 as fibromyomas, and 1 as a myofibroma. None of these tumors were of any apparent clinical significance, and the largest was less than 2 cm. in diameter. Other types of fibromas mentioned by Palmer[19] are adenofibroma, myxofibroma, and osteofibroma. These tumors are typically round or slightly lobulated, and pedunculation is common. Frequently, they are submucous in position, but occasionally they may be exogastric.

In the present series there was no roentgen-ray examination of any of these tumors.

LIPOMAS

Lipomas comprise only a small proportion of benign tumors of the stomach. In the present series there were 3 lipomas, 2 of which were clinically significant. This can be compared with Stout's series[26] of 1 lipoma among 110 benign tumors and Bucksteín's series[4] of 104 tumors of which 1 is listed as a fibrolipoma.

These tumors are typically spherical or ovoid in shape and submucosal in position, and pedunculation is rare (Palmer[18]). However, in the present series 1 of the tumors had a long pedicle (case 9) that permitted prolapse into the second position of the duodenum (fig. 7). The 2 other lipomas in this series were intramural and ovular in shape.

The roentgen findings in 2 of the cases were striking (fig. 6 and 7) although they did not lead to a correct diagnosis. In retrospect, the marked radiolucency of 1 of these tumors (fig. 6) should have suggested the possibility of a lipoma although we doubt that differentiation from leiomyoma on this basis alone is possible.

Illustrative Cases

CASE 8.—M. E. M., a white woman, aged 55, complained of pain in the face and eyes at intervals of several years. There were no definite symptoms referable to the gastrointestinal tract. However, an upper gastrointestinal roentgen-ray series showed an oval shaped radiolucent mass within the wall of the lower portion of the body of the stomach (fig. 6a and b). Gastroscopy showed a large polyp with a smooth mucosal surface and a shallow ulceration on the surface. Gastric acidity was slightly elevated.

At operation, the surgeon (Dr. E. B. Rowe, Galveston) first thought that the tumor was freely movable within the stomach lumen. After the stomach was opened, the tumor was found to be entirely within the posterior wall. The tumor was shelled out of its bed. It was 3.5 by 2.5 by 1.4 cm. and presented a light yellow homogenous color on its

cut surface. There was no pedicle. Microscopic examination showed a structure typical of a lipoma.

The radiolucency of this tumor was striking. There was no interference with mobility or peristalsis of the stomach. The films suggested that the mass was movable within the stomach, but the fluoroscopist correctly maintained that the tumor was submucosal and in the stomach wall. This tumor caused no apparent symptoms.

CASE 9.—A. W., a 61 year old Negro woman, had had symptoms for five months of "sickness in the stomach." Her symptoms were ill defined and apparently consisted of a vague distress in the epigastrium. She denied the presence of pain, and also there was no nausea or vomiting. At fluoroscopy the examiner immediately noticed a slightly lobulated radiolucent shadow just beyond the duodenal cap (fig. 7a). A few seconds later with the patient on her stomach, the shadow had moved into the descending portion of the duodenum (fig. 7b). The patient was obese and it was impossible to manipulate this area of the duodenum. During a second examination the radiolucent shadow was again noted in the duodenal cap, and in addition a long radiolucent shadow, slightly larger than those usually due to stomach mucosa (fig. 7c), was identified in the antral region. The tumor again progressed into the descending portion of the duodenum, and there was no evidence of prolapse or partial intussusception of the stomach.

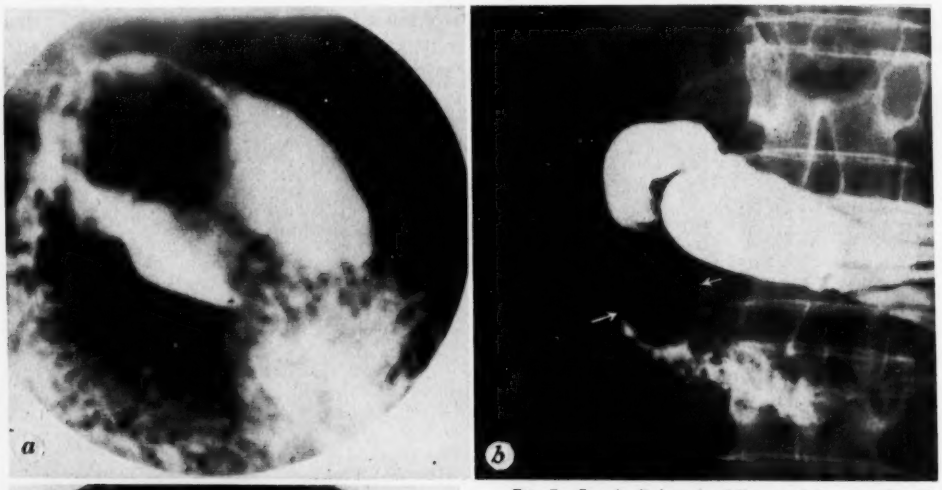


FIG. 7. Case 9. Pedunculated lipoma of the stomach with prolapse into the descending duodenum.
a. A radiolucent shadow is noted in the barium-containing descending portion of the duodenum (*arrows*).
b. The radiolucent shadow is near the apex of the duodenal cap.
c. A long narrow radiolucent shadow is seen in the antrum (*arrows*). This was thought to represent the pedicle.

A diagnosis of polypoid tumors of the stomach antrum with prolapse through the pylorus was made. Because of the apparent long, rather slender stalk and no evidence of infiltration of the stomach wall, the tumor was thought to be benign. The radiolucency of the tumor was noted, but it was not distinctively different from that of other benign tumors, and the possibility of a lipoma was not suggested.

At operation a tumor 2.5 by 2.2 by 2 cm. was found within the duodenum; however, the pedicle was attached to the stomach in the prepyloric region. Surprisingly, the fixed stalk was only 1.5 cm. in length. The tumor was covered entirely with stomach mucosa. Grossly it had the appearance of fatty material and microscopically its structure was typical of a lipoma.

During a follow-up period of six months the patient stated that she felt better than before her operation.

Pedicle formation in lipomas is thought to be rare (Palmer[18]), and most of these tumors are submucous or intramucal in location. For this reason, the possibility of lipoma was not considered. The radiolucency of this tumor was not as striking as that of case 8.

MYXOMAS

According to Palmer[18] pure myxomas are extremely rare. In the case included here the pathologist in 1938 gave an unequivocal diagnosis of myxoma.

Case Report

CASE 10.—W. S., a 54 year old white man, complained of vomiting large quantities of blood on two occasions. He had had abdominal pain for five months without any relation to food or alkalis.

An upper gastrointestinal roentgen-ray series showed marked narrowing of the prepyloric area. The interior of the stomach showed an irregular jagged appearance. The impression from the gastrointestinal series was "an early carcinoma or a peptic ulcer."

At operation a soft, movable, bulging area was found in the prepyloric region. A subtotal gastric resection was done. On section a gelatinous intramural neoplasm was found. Microscopic examination showed a thick mass of myxomatous tissue surrounded by a rather definite capsule of fibrous tissue. The microscopic diagnosis was myxoma.

The pathologic description was not detailed; consequently, the present case cannot be unequivocally accepted as a myxoma, although it was unquestionably a benign tumor.

ABERRANT PANCREATIC TISSUE

In the present series there was only 1 tumor due to aberrant pancreatic tissue, and this was an incidental finding in an autopsy case. Stout[26] found 6 cases of aberrant pancreatic adenomas in the stomach among 110 benign tumors, and Littner and Kirsh[15] reported on 7 such tumors observed during a three year period. Consequently, it is probable that they are more frequent than the present material indicates. Palmer[18] found 215 cases in a review of the literature up to 1950.

Roach and Poppel[23] and Littner and Kirsh[15] have given excellent descriptions of the radiologic appearance of these tumors. They are far more common in the antrum than elsewhere within the stomach. They appear as rounded or oval, rather smooth filling defects within the stomach wall; rarely, they may be pedunculated or polypoid. The mucosa over the tumor is smooth, but normal stomach mucosa can be followed to the usually sharp margin of the tumor. There is no interference with peristalsis or mobility of the stomach wall. In many of these tumors, a significant feature is the presence of a pit or depression over the midportion of the mucosal surface. When this depression fills with barium, it produces a fleck which lies near the center of the tumor mass, and this produces a distinctive sign which is suggestive of an aberrant pancreatic adenoma. The pocket or pit was found in 6 of the 7 cases described by Littner and Kirsh[15] but is not invariably present. It is characteristically variable in size. Occasionally, the opening may be covered by mucus so that barium does not enter; therefore, the absence of the barium fleck does not eliminate the possibility of this type of tumor.

VASCULAR TUMORS

Vascular tumors are rare, and Palmer[18] stated that their incidence was about .09 per cent of all benign tumors of the stomach collected from the literature. In the present series there is a single lymphatic cyst which was an incidental finding at autopsy.

Hemangiomas are said to be found occasionally in widespread multiple hemangiomatosis and multiple hemorrhagic telangiectasia (Stout[26]). We know of no definite roentgen signs which would permit differentiation of this tumor from other benign tumors of the stomach.

OTHER RARE TUMORS

Stout[26] described a glomus tumor of the stomach. These tumors have a distinctive vascular pattern, are usually small, and grossly resemble leiomyomas. Apparently, they do not have a distinctive roentgen-ray appearance.

Other rare tumors mentioned by Palmer[18] are osteomas, osteochondromas, pheochromocytomas, histiocytomas, and benign reticulum cell tumors.

Eosinophilic granulomas, or more precisely "gastric submucosal granuloma with eosinophilic infiltration," have been reported by Vanek[27] and by Stout.[26] These should not be classified as true tumors. They apparently may be a cause of symptoms and have been found in association with peptic ulceration.

Inflammatory fibroid polyps of the stomach have been described by Helwig and Ranier,[13] and they are similar to the eosinophilic granulomas described by Vanek.

Polypous gastritis may resemble multiple adenomatous polyps during gastrointestinal roentgen-ray examination and even on gross inspection of the stomach. Microscopic examination permits a differentiation, and care has been taken so as not to include examples of this condition in the present series.

Mucosal hypertrophy of the stomach or Menetrier's disease (Goodale and Sniffin[11]) is another condition in which the radiologic findings may resemble multiple polyposis. This condition apparently is not inflammatory in origin and is benign in its effects.

BENIGN DUODENAL TUMORS

Of the 9 duodenal tumors recorded in this series, 8 must be regarded as incidental autopsy findings. The largest of these incidental tumors was 2 cm. in diameter and probably could have been demonstrated by a gastrointestinal roentgen-ray series, but such was not done since the patient had no gastrointestinal symptoms. The remainder of the incidental tumors were less than 1 cm. in diameter; in 2 cases they were multiple. All of these tumors except 1 were between the pylorus and ampulla of Vater; 1 tumor was described as being 2 cm. beyond the ampulla.

The pertinent details of the single case in which

the tumor was visible but overlooked on gastrointestinal roentgen-ray examination follow:

Case Report

CASE 11.—A. B., a 67 year old Negro man, complained of intermittent vomiting spells for more than a year. More recently there had been mild cramping, epigastric pain, marked weakness, and loss of weight.

A gastrointestinal roentgen-ray examination (fig. 8) showed polypoid-like masses along the greater curvature extending from the lower portion of the body into the antrum. Peristalsis was noticeably absent in this area. There was a considerable residue in the stomach after 24 hours. The impression given for the roentgen-ray examination was "malignant neoplasm of the greater curvature of the stomach, probably carcinoma." A sizable radiolucent shadow in the duodenal cap was overlooked (arrows fig. 8).

FIG. 8. Case 11. Carcinoma of the stomach and a duodenal polyp. A lobulated radiolucent shadow is visible in the base of the duodenal cap *(arrows)*. There is irregularity with fixation of the wall in the region of the antrum and the body of the stomach due to a carcinoma.

At operation numerous metastases were found throughout the abdomen, and only a palliative gastroenterostomy was done. The patient died about six weeks later.

At autopsy the tumor in the stomach extended from the body into the antral region but stopped short of the pylorus. It measured about 8 by 8 cm. in diameter. In the duodenal cap there was a polypoid mass about 1 cm. in diameter which was freely movable. It was entirely separate from the stomach tumor. Microscopic examination showed "papillary adenocarcinoma of the stomach" and "polyp of duodenum with questionable malignancy." The pathologist stated elsewhere in the protocol that the evidence for malignant change in the polyp was slight and inconclusive.

One can only speculate as to the effect of the duodenal polyp on the gastric retention; this could well have been attributed to the large carcinoma. It has been stated by Schinz and his associates[24] that malignant changes in polyposis of the duodenum rarely have been observed. In the present series there has been no evidence of such a change.

SUMMARY AND CONCLUSIONS

A total of 71 benign tumors of the stomach are reviewed. The most frequently benign gastric tumor is an adenomatous polyp; the most common nonepithelial benign tumor is a leiomyoma. This agrees with several sizable reported series of benign tumors (Stout,[26] Buckstein,[4] and Colp and Weinstein[6]). In the present series benign tumors of clinical or radiologic significance constitute about 3 per cent of all stomach tumors.

In the material studied there was scant evidence that benign mucosal polyps undergo malignant change, and this is in agreement with the findings of others.[5] In only 1 case was a benign polyp found in the same stomach with a carcinoma. A review of 118 cases of carcinoma of the stomach seen during the past five years did not reveal a single case in which the tumor was thought to be a benign polyp by roentgen-ray examinations or gross inspection and then was found to be malignant on microscopic examination. Among 21 cases of pernicious anemia recorded in the pathology files, adenomatous polyps of the stomach were found only once.

Benign tumors of the duodenum are less common than those of the stomach and are a rare cause of clinical symptoms. Only 1 of 9 tumors included in this series was of any clinical or radiologic significance.

The roentgen-ray appearance of several benign tumors of the stomach and duodenum is presented.

REFERENCES

A list of bibliographic references may be obtained from the authors.

PSORIASIS RESEARCH ASSOCIATION

The Psoriasis Research Association, a nonprofit group, has been organized with headquarters in San Mateo, Calif. Membership is open, and a medical advisory board, which will recommend people within the medical profession or research laboratories who should receive research grants, is being organized. The association had 147 members as of August 1, 1955, of which 38 were doctors.

The purposes of the association are (1) to encourage and finance research, (2) to keep the membership informed of the progress of the association's program and that of the medical profession by sending periodic bulletins to each member, and (3) to stimulate public education concerning the known facts on psoriasis.

Membership fee is $5 a year. Full information may be obtained by writing to the Psoriasis Research Association, P. O. Box 513, San Mateo.

FEW PHYSICIANS OVER 65 RETIRE

In a recent poll conducted by *Medicine in the News,* it was found that the majority of physicians over 65 years of age remain important and necessary members of the health teams in their communities. A questionnaire sent to physicians past "retirement age" revealed that (1) eight of every ten are still in active practice; (2) one of every two sees more than 40 patients in an average week; (3) one of every four treats patients of all ages and one of every two sees chiefly patients between the ages of 40 and 60; and (4) one of every four will handle all types of cases and three of every four do not accept surgical cases.

CANCER OF THE COLON

R. L. SANDERS, M. D. Memphis, Tennessee

FROM the standpoint of embryology, anatomy, and physiology, the colon may be regarded as two distinct organs, one on the right and the other on the left. The right half to the splenic flexure arises from the midgut, the left half from the hindgut. The right half is the larger, the size of the entire organ gradually diminishing from the cecum to the rectosigmoid juncture. The walls of the right half are thin, whereas those of the left are relatively thick and muscular. The right half is concerned primarily with absorption of the fluid contents, the left half with storage. Further, the right half receives its blood supply chiefly through the superior mesenteric artery and its branches, whereas the left half is supplied by the inferior mesenteric artery. Because of these individual features, the location of a cancer of the colon has a direct bearing upon its type and upon the symptoms, diagnosis, methods of treatment, and prognosis.

Pathologically, colon carcinomas are of two general types. One is cellular and fungating and protrudes into the lumen as a bulky, irregular mass. This type is observed in the right half. The second type, which is common to the left part of the colon, is flat and annular, and its edges overhang to form a crater. Growths of this variety spread by infiltration of the bowel wall, proceeding circumferentially and constricting the lumen. Usually, they have a fibrous or scirrhous base and are of relatively slow development. Sooner or later, the surfaces of both the fungating masses in the right colon and the craters in the left undergo ulceration and necrosis.

Either of these two forms may contain more or less extensive mucoid deposits. The mucus is believed to be produced by degeneration of the carcinomatous cells or by a secretory activity of the cells. Tumors presenting this feature widely infiltrate the bowel wall but metastasize slowly. Once the regional lymph nodes are invaded, metastasis to distant structures may take place rapidly.

DR. ROBERT L. SANDERS, *Senior Surgeon, Baptist Memorial Hospital, and President of the Southern Medical Association, was one of the special speakers at the 1955 Annual Session of the Texas Medical Association in Fort Worth. This paper was presented before the Section on Surgery, April 25.*

SYMPTOMS

A clear-cut definition of the manifestations of cancer of the colon as related to the different segments would be impossible. Certain symptoms and signs, however, are so often observed in association with lesions in each portion as to constitute fairly reliable guideposts to the diagnosis.

The chief clinical sign of malignancies in the right half is a peculiar type of anemia which, symptomatically, is not unlike pernicious anemia. So constant is its presence to some degree that cancer should be suspected immediately if no other source of blood loss is found. Insidious in onset, the anemia is exhibited first by a general weakness; in fact, this weakness may at times be the sole clue to the diagnosis. Gradually, the anemia and weakness become more profound and are accompanied by loss of appetite and weight and by toxic symptoms incident to the absorption of poisonous substances from the ulcerated and infected surfaces of the growth. As the tumor enlarges and ulceration and infection increase, the patient approaches a state of cachexia. Before this stage is reached, however, other evidences of the disease will have entered the picture.

Even though the symptoms of anemia and intoxication are usually paramount in the patient's complaint, and at times the only symptoms, they are more likely to be associated with signs of a functional disturbance, such as dyspepsia and a sense of fullness and discomfort. Localized tenderness and pain are also frequently a part of the syndrome, the pain being of an aching character and persistent rather than remitting.

Because of the liquid nature of the intestinal contents and the large lumen of the cecum and ascending colon, growths in this segment are seldom obstructive. Thus, they may be well developed before making their presence known. In fact, the patient's accidental discovery of a mass in the right side may be the first indication of the disease. Tumors at the hepatic flexure, however, frequently produce obstruction, as exhibited by distention, borborygmus, colicky pain, and constipation.

A carcinoma of the transverse colon may present symptoms common to that of either the right or left half, or to both. Anemia and weight loss are often associated and, because of the more solid colon contents, are signs of obstruction as well. The nearer the lesion to the splenic flexure, the more pronounced are the obstructive manifestations.

Obstruction is the outstanding characteristic of

malignancies of the left half of the colon, especially those at the splenic flexure and rectosigmoid junction. Early in the course of the disease the patient complains of constipation which requires the use of laxatives and often of a vague abdominal discomfort. These disturbances are gradually followed by distention and colicky pain and perhaps by diarrhea alternating with the constipation. Sooner or later, bright blood and mucus are likely to be discovered in the stools. Anemia and loss of appetite and weight generally appear later in cancer of the left part of the colon than in that of the right half.

DIAGNOSIS

In establishing the presence of a carcinoma of the colon, the physician should question the patient with reference to (1) weakness, (2) a persistent digestive disorder, (3) abdominal pain and soreness, (4) any abnormality of bowel function, and (5) the passage of blood and mucus. The clinical investigation should include palpation and auscultation of the abdomen, digital examination of the rectum, sigmoidoscopy, studies of the blood for anemia, stool tests for blood and parasites, and roentgenograms of the entire colon.

Unless the patient is obese or a growth is situated beneath the costal margin, a mass often will be detected on palpation. Obstruction may be obvious by distention and visible peristalsis proximal to the growth. Pressure over the area of distention usually will produce a gurgling sound, indicating the passage of gas through the occlusion. Failure to elicit a mass or obstructive signs, however, does not eliminate the possibility of a carcinoma.

Current practice demands a digital examination of the rectum as a part of every patient's physical review. A history of bleeding or other indication of a gastrointestinal disorder calls for sigmoidoscopy as well. If a suspicious lesion is discovered, a biopsy specimen should be taken. In common with many other surgeons, I have seen a considerable number of patients with rectal cancer who have been treated for hemorrhoids or fistula.

A study of the blood may reveal a more or less advanced anemia, particularly if the lesion is in the right half of the colon. Examination of the intestinal contents for blood and mucus is more useful for the diagnosis of growths in the left half; the nearer the tumor to the anal outlet, the more likely a physician is to find bright blood and an excessive amount of mucus. Occasionally, an ulcerating lesion in the right part of the colon may give rise to slight bleeding, evidenced by melena.

The finding of amebas in the stools may be misleading. It is well to bear in mind that amebiasis and carcinoma of the colon are at times coexistent.

Roentgen studies of the entire colon following a barium enema, especially with double contrast media, should reveal lesions above the reach of the sigmoidoscope. In the administration of a barium enema, the danger of precipitating an acute obstruction or perforation should be taken into consideration.

The differential diagnosis of carcinoma of the right half of the colon should include, in addition to amebic colitis, a benign tumor, intussusception, and an appendical abscess. On the left, the various forms of colitis, diverticulitis, polyposis, and, in women, endometriosis should be distinguished. Occasionally, the true nature of the disease can be determined only by exploratory surgery, especially if carcinoma is associated with some other pathologic condition.

TREATMENT

The patient who is to undergo resection of the colon should have the benefit of every facility available to stimulate his resistance and recuperative powers, that is, measures to correct dehydration and anemia, antibiotics, cleansing of the bowel, and, if necessary, the use of a Levine tube to overcome obstruction. Except in those rare cases of acute obstruction and perforation wherein operative intervention is urgent, haste in undertaking resection of the colon is ill advised.

One of the facts which I have learned over the years regarding colon carcinoma is that the size of the growth is not an infallible index of its resectability or of the prognosis. Distant glands may be invaded by metastases from a relatively small lesion, and on the other hand, the largest or most inaccessible growths may at times lend themselves to complete extirpation. This being true, the surgeon's objective should be the most complete excision possible under the circumstances. In fact, I no longer hesitate to perform a resection as a palliative measure in the presence of moderate liver metastases or invasion of an adjacent organ.

The techniques of resection have been fairly well standardized. When the findings and the operative risk permit, a one stage procedure is preferable. In other cases, variations of this method may be expedient.

From the surgical standpoint as well as in other respects, carcinoma of the right half of the colon differs from that of the left half. In resection for lesions on the right there is little danger of destroying the blood supply to the small intestine; thus one may remove as much of the terminal ileum and colon as necessary. The glandular area, also, may be extensively resected. End-to-end or lateral anastomosis of the terminal ileum to the transverse segment may be accomplished with relative ease. If obstruction is pronounced, the use of an intestinal tube for a few

days before and after operation usually will serve to decompress the bowel.

For lesions in the proximal third of the transverse colon, I remove the right part of the colon and most of the transverse segment, widely excising the gland-bearing area. Growths in the middle of the transverse colon are removed by segmental resection, including as much of the gland-bearing mesentery as is consistent with preservation of sufficient blood supply to insure healing. Following this procedure, the anastomosis is made end-to-end. If advanced, obstruction of the transverse segment may be relieved by cecostomy prior to resection.

In excision of lesions in the region of the splenic flexure, the transverse colon is divided proximally and the diseased portion together with the descending colon is removed with its mesentery. A similar technique is employed for growths in the descending and sigmoid segments, though here the resection includes the entire left half of the colon down to the rectum. The proximal and distal portions are then united end-to-end.

In resecting malignancies on the left, some surgeons ligate the inferior mesenteric artery at its origin and excise the entire gland-bearing mesentery up to the ligament of Treitz. This procedure is consistent with the present concept of radical surgery and, although the risk is increased, I believe it is justified in the presence of extensive glandular metastases.

In nonobstructive or only mildly obstructive lesions of the left half of the colon, it is my practice to cleanse the bowel thoroughly and administer antibiotics for a few days prior to operation. Severely obstructive tumors, however, call for decompression by a preliminary transverse colostomy.

After either cecostomy or transverse colostomy, both the proximal and distal segments of the bowel should be irrigated daily until well cleansed. This usually requires about two weeks. Resection is then performed, and when healing of the anastomosis is complete, the opening is closed.

PROGNOSIS

The ultimate outcome of resection obviously depends primarily upon whether or not the malignancy is completely removed. Within recent years, surgical policy has leaned toward a more and more radical attack on the growth and more thorough excision of the gland-bearing tissues. In the hands of the skilled surgeon, the operative mortality from such measures is low. Their ultimate effectiveness already has been shown by an increase of approximately 10 per cent in the five year survival rate.

Aside from the thoroughness with which a carcinoma is removed, the chief factor which governs the prognosis is the degree of its malignancy. Following removal of low grade malignancies of the colon, a five year survival is not unusual in approximately 75 per cent of cases, whereas the rate is about 35 per cent, on the whole, following resection of more malignant lesions.

The location of the growth also may affect the period of survival postoperatively. In general, carcinoma of the right half of the colon is more amenable to complete eradication than that of any other portion, since the relation of the colon to other viscera on this side permits wide excision of the regional lymphatics.

The fact that carcinoma in the left half usually grows slowly is advantageous from the prognostic standpoint. Several months or a year, or even longer, may elapse before the entire muscularis is penetrated; thus, complete eradication is possible if the tumor is discovered while still limited to the bowel wall. Lesions at the splenic flexure and rectosigmoid usually make their presence known early and consequently are more favorable for resection than those in any other portion of the distal colon.

Medical Care Since 1929

The American Medical Association's Bureau of Medical Economic Research has compiled statistics for a review of the economic position of medical care over the past quarter century.

The findings show that while there has been a general increase in the dollars spent for medical care, the percentage of consumer expenditures for medical care has risen only from 3.99 to 4.35 per cent, with the most rapid increase taking place since World War II.

A notable factor in the increased personal consumer expenditures for medical care has been the huge upswing since World War II of the birth rate, which means that other medical services besides hospital and obstetrics have gained, for the youngest age group traditionally requires the most frequent medical attention. Because maternal mortality has been lowered, fear of childbirth is losing ground, thus contributing to the rapid rise in birth rates.

A second factor in the increased medical care expenditures is medical care and hospitalization insurance. From 1929 until 1953, the increase in voluntary health insurance was 779 million dollars. This figure is primarily overhead cost, and is figured by subtracting claims paid from premiums paid.

In the field of prices, the bureau notes that the index for medical care and drug prices stood at 173.9 in 1954, well below the 191.9 for the entire Consumer Price Index. Item indexes for physicians' and dentists' fees were even lower—160.3 and 174.5. A significant increase in hospital room rates helped to raise the over-all medical care and drug index.

The average income of physicians rose at almost exactly the same rate as did the average salaries of industrial workers from 1929 until 1951, and estimates indicate that there has been no change in this condition since 1951.

CASE REPORTS

Resection of a Cavernous Hemangioma of the Liver

L. GONZALEZ CIGARROA, M. D., F.A.C.S., and M. E. MALAKOFF, M. D.,
Laredo, Texas

PERFORCE primary hepatic tumors are rare and those which are amenable to surgical extirpation are even rarer. The following case represents an instance wherein a cavernous giant hemangioma of the right lobe of the liver was resected.

CASE REPORT

C. H. V., a woman aged 44 years, was admitted to the Mercy Hospital, Laredo, Texas, February 20, 1955. She gave the clinical history of a palpable abdominal "tumor" of years' duration which made her "stomach feel full" and which at times gave her pain on direct pressure. In addition, during the past three months she had noted a menorrhagia and metrorrhagia. Inventory by systems was otherwise negative.

General physical examination revealed a well developed and well nourished white woman not appearing acutely or chronically ill. The only positive physical findings were limited to the abdomen. Its contour was distorted by a visible mass which seemed to fill the entire right hypochondrium area extending from the costal margin downward to the pelvis. This mass was slightly tender and had an irregular firm shape. It presented no movement with respiration. On auscultation no bruit was heard. Pelvic examination revealed an enlarged corpus uteri with the presence of multiple hard nodular masses clinically interpreted as being leiomyomas. The provisional clinical diagnosis of leiomyomata uteri, multiple, with one large pedunculated tumor was made. Laboratory studies were all within the limits of normal.

On February 21 surgery was performed. With general endotracheal anesthesia a suprapubic midline incision was made and the abdomen entered. A free peritoneal cavity was exposed, and upon abdominal visceral exploration multiple leiomyomas of the uterus were found and a large, irregular, firm tumor occupying the greater portion of the right lobe of the liver was palpated. The suprapubic midline incision was extended upward to the xiphoid process, and this added exposure revealed the presence of a volleyball sized tumor of a varied consistency and appearance occupying three-fourths of the right lobe of the liver. It was decided that a partial right hepatolobectomy was indicated.

Multiple through and through overlapping mattress sutures through normal hepatic parenchyma were placed proximal to the area where the line of transection would be. Distal to these overlapped mattress sutures multiple through and through sutures were placed and the ends left long and untied. The hepatic parenchyma was then incised with a scalpel, and as the portal triads were encountered fine gastrointestinal transfixing sutures were used for hemostasis and to close the hepatic biliary ductules. Once the entire tumor was removed a large free omental onlay graft was placed over the raw exposed hepatic surface and the untied sutures were used to anchor this omental graft in place. After this procedure a total hysterectomy and bilateral salpingo-oophorectomy was performed.

The patient withstood surgery well with stabilized blood pressure, pulse, and respiratory rates during the procedure. She received a total of 1,000 cc. of blood during and immediately after surgery. Her wound was closed in layers with multiple Penrose drains via stab wounds to the pouch of Morrison. Total operating time was two and a half hours.

Convalescence was uneventful, and the patient was dismissed from the hospital on her ninth postoperative day. She has remained well and liver function studies have been within the limits of normal.

*Pathologic Report.**—Grossly the specimen was a large purple tumor encampsulated over most of its surface. Along one border there was an area wherein the capsule was deficient; in this area there were pieces of recognizable liver tissue (line of transection). The tumor surface was gently lobulated and had a spongy texture. On section the internal structure was extremely hemorrhagic and blood poured from all surfaces. The typical tissue was a mass of closely packed spaces separated by thin septums. In the center of the mass and coming from the area of the liver attachment were a large number of blood vessels in the order of 0.5 to 1.0 cm. These had very fine thin walls and were surrounded by a variable amount of dense white tissue.

The uterus had been removed completely with both tubes and ovaries and presented multiple fibromas. Within the endometrial cavity were 3 polyps.

Microscopically the hepatic tumor was a typical cavernous giant hemangioma, benign. The uterine tumors were fibroids and the endometrial polyps benign.

SUMMARY

A case of successful removal of a giant benign cavernous hemangioma of the right lobe of the liver has been presented.

**Prepared by Dr. W. Emerson, Pathologist, Mercy Hospital.*
806 Matamoros.

Health Insurance Coverage

Voluntary health insurance took another forward stride during 1954. During the year, the number of people with hospital expense protection increased by 4.3 per cent. For surgical expense protection, the numbers covered grew at a rate of 6.1 per cent, and regular medical expense protection grew at the even more rapid rate of 10.7 per cent. These figures are based on data assembled by the Health Insurance Council in its ninth annual survey of the extent of voluntary health insurance coverage in the United States.

NEWS

COMING MEETINGS AND CLINICS

Texas Medical Association, Galveston, April 21-25, 1956. Dr. J. Layton Cochran, San Antonio, Pres.; Mr. C. Lincoln Williston, 1801 North Lamar Blvd., Austin, Executive Secy.

American Medical Association, Clinical Meeting, Boston, Nov. 29-Dec. 2, 1955. Dr. Elmer Hess, Erie, Pa., Pres.; Dr. George F. Lull, 535 North Dearborn, Chicago 10, Secy.

NATIONAL AND REGIONAL

American Academy of Allergy, St. Louis, Feb. 6-8, 1956. Dr. Stanley F. Hampton, St. Louis, Pres.; Dr. Frances C. Lowell, 65 E. Newton, Boston, Secy.

American Academy of Dermatology and Syphilology, Chicago, Dec. 3-8, 1955. Dr. Arthur C. Curtis, Ann Arbor, Pres.; Dr. James R. Webster, 55 E. Washington, Chicago 2, Secy.

American Academy of General Practice, Washington, D. C., March 18-23, 1956. Dr. John R. Fowler, Barre, Mass., Pres.; Mr. Mac F. Cahal, 406 W. 34th St., Kansas City 2, Executive Secy.

American Academy of Obstetrics and Gynecology, Chicago, Dec. 13, 1955. Dr. William F. Mengert, Dallas, Pres.; Dr. C. Paul Hodgkinson, 116 S. Michigan Blvd., Chicago 3, Secy.

American Academy of Ophthalmology and Otolaryngology. Dr. Algernon B. Reese, New York, Pres.; Dr. W. L. Benedict, 100 First Ave. Bldg., Rochester, Minn., Secy.

American Academy of Pediatrics. Dr. A. Crawford Bost, San Francisco, Pres.; Dr. E. H. Christopherson, 610 Church, Evanston, Ill., Secy.

American Association for Thoracic Surgery, Miami Beach, Fla., May 7-9, 1956. Dr. Richard H. Meade, Grand Rapids, Mich., Pres.; Dr. Paul C. Samson, 3959 Happy Valley Rd., Lafayette, Calif., Secy.

American Association of Genito-Urinary Surgeons, Oyster Harbors, Mass., June 4-6, 1956. Dr. Norris J. Heckel, Chicago, Pres.; Dr. John A. Taylor, 2 E. 45th St., New York 22, Secy.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons. Dr. Thaddeus L. Montgomery, Philadelphia, Pres.; Dr. F. R. Lock, Bowman Gray School, Winston-Salem, N. C., Secy.

American Cancer Society. Dr. Guy Aud, Louisville, Ky., Pres.; Mr. M. R. Runyon, 47 Beaver, New York, Executive Vice-Pres.

American College of Allergists, New York, April 15-20, 1956. Dr. Lawrence J. Halpin, Cedar Rapids, Iowa, Pres.; Dr. Fred W. Wittich, 401 La Salle Medical Bldg., Minneapolis 2, Secy.

American College of Chest Physicians, Chicago, June 7-10, 1956. Dr. James H. Stygall, Indianapolis, Pres.; Mr. Murray Kornfeld, 112 E. Chestnut, Chicago 11, Executive Secy.

American College of Physicians, Los Angeles, April 16-20, 1956. Dr. George F. Strong, Vancouver 1, B. C., Pres.; Mr. E. R. Loveland, 4200 Pine, Philadelphia 4, Secy.

American College of Radiology, Chicago, Feb. 10-11, 1956. Dr. Warren W. Furey, Chicago, Pres.; Mr. W. C. Stronach, 20 N. Wacker Dr., Chicago 6, Executive Secy.

American College of Surgeons, Chicago, Oct. 31-Nov. 4, 1955. Dr. Alfred Blalock, Baltimore, Pres.; Dr. Michael L. Mason, 40 E. Erie, Chicago 11, Secy.

American Congress on Obstetrics and Gynecology. Dr. R. Gordon Douglas, 116 S. Michigan Ave., Chicago 3, Chm.

American Congress of Physical Medicine and Rehabilitation, Atlantic City, N. J., Sept. 10-14, 1956. Dr. Gordon M. Martin, Rochester, Minn., Pres.; Dr. Frances Baker, 1 Tilton Ave., San Mateo, Calif., Secy.

American Dermatological Association. Dr. V. Pardo-Castello, Havana, Cuba, Pres.; Dr. J. Lamar Callaway, Duke Hospital, Durham, N. C., Secy.

American Gastro-Enterological Association, Atlantic City, N. J., April 27-28, 1956. Dr. Robert Elman, St. Louis, Pres.; Dr. H. Marvin Pollard, University Hospital, Ann Arbor, Mich., Secy.

American Gynecological Society, Washington, D. C., May 21-23, 1956. Dr. Isidor C. Rubin, New York, Pres.; Dr. John I. Brewer, 104 S. Michigan Ave., Chicago, Secy.

American Heart Association. Dr. E. Cowles Andrus, Baltimore, Pres.; Mr. Irving Hexter, 44 E. 23rd, New York 10, Secy.

American Hospital Association. Dr. Frank R. Bradley, St. Louis, Pres.; Dr. Edwin L. Crosby, 18 E. Division, Chicago, Executive Director.

American Laryngological, Rhinological, and Otological Society, Montreal, Canada, May 15-17, 1956. Dr. Dean M. Lierle, Iowa City, Pres.; Dr. C. S. Nash, 277 Alexander, Rochester 7, N. Y., Secy.

American Neurological Association, Atlantic City, N. J., June 18-20, 1956. Dr. J. M. Neilson, Los Angeles, Pres.; Dr. Charles Rupp, 133 S. 36th, Philadelphia 4, Secy.

American Ophthalmological Society, Hot Springs, Va., May 31-June 2, 1956. Dr. Alan C. Woods, Baltimore, Pres.; Dr. M. C. Wheeler, 30 W. 59th, New York 19, Secy.

American Orthopedic Association, Banff, Canada, June 20-23, 1956. Dr. Paul C. Colonna, Philadelphia 4, Pres.; Dr. George O. Eaton, 4 E. Madison, Baltimore 2, Secy.

American Pediatric Society, Buck Hill Falls, Pa., May 6-11, 1956. Dr. Allan M. Butler, Boston, Pres.; Dr. A. C. McGuinness, 237 Medical Laboratory, University of Pennsylvania, Philadelphia 46, Secy.

American Proctologic Society, Detroit, June 6-9, 1956. Dr. Stuart T. Ross, Hempstead, N. Y., Pres.; Dr. Karl Zimmerman, 3500 Fifth Ave., Pittsburgh 13, Secy.

American Psychiatric Association, Chicago, April 30-May 4, 1956. Dr. R. Finley Gayle, Richmond, Va., Pres.; Dr. William Malamud, 80 E. Concord, Boston 18, Secy.

American Public Health Association, Kansas City, Nov. 14-18, 1955. Dr. Herman E. Hilleboe, Albany, N. Y., Pres.; Dr. R. M. Atwater, 1790 Broadway, New York 19, Executive Secy.

American Society of Anesthesiologists, Boston, Oct. 29-Nov. 3, 1955. Dr. B. B. Sankey, Cleveland, Ohio, Pres.; Dr. J. E. Remlinger, Jr., 188 W. Randolph, Chicago, Secy.

American Society of Clinical Pathologists. Dr. John R. Schenken, Omaha, Pres.; Dr. Clyde G. Culbertson, 1040 W. Michigan, Indianapolis 6, Secy.

American Surgical Association, W. Sulphur Springs, W. Va., April 11-13, 1956. Dr. Alfred Blalock, Baltimore, Pres.; Dr. R. Kennedy Gilchrist, 59 East Madison, Chicago 3, Secy.

American Urological Association, Boston, May 28-31, 1956. Dr. George C. Prather, Brookline, Pres.; Dr. Samuel L. Raines, 188 S. Bellevue Blvd., Memphis, Tenn., Secy.

Association of American Physicians and Surgeons, Annual Meeting, Columbus, Ohio, April 5-7, 1956. Dr. James L. Doenges, Anderson, Ind., Pres.; Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Secy.

International College of Surgeons, U. S. Chapter. Dr. Arnold S. Jackson, Madison, Wisc., Pres.; Dr. Karl Meyer, 1516 Lake Shore Dr., Chicago, Secy.

National Tuberculosis Association, New York, May 21-25, 1956. Dr. Edward T. Fagan, Brooklyn, Pres.; Mrs. Morrell DeReign, 1790 Broadway, New York 19, Secy.

Radiological Society of North America, Chicago, Dec. 11-16, 1955. Dr. Tom B. Bond, Fort Worth, Pres.; Dr. D. S. Childs, 713 E. Genesee, Syracuse 2, N. Y., Secy.

Southern Medical Association, Houston, Texas, Nov. 14-17, 1955. Dr. Robert L. Sanders, Memphis, Tenn., Pres.; Mr. V. O. Foster, 1020 Empire Bldg., Birmingham 3, Secy.

Southern Psychiatric Association. Dr. John D. Trawick, Louisville, Pres.; Dr. Joseph L. Knapp, 210 N. Westmoreland, Dallas, Secy.

Southern Surgical Association, Hot Springs, Va., Dec. 6-8, 1955. Dr. Carrington Williams, Richmond, Pres.; Dr. George Finney, 2947 St. Paul, Baltimore, Secy.

Southwest Allergy Forum. Dr. Henry D. Ogden, New Orleans, Pres.; Dr. Stanley Cohen, 1441 Delachaise, New Orleans, Secy.

Southwest Regional Cancer Conference. Dr. John L. Wallace, Box 1719, Fort Worth, Chm.

Southwestern Medical Association, Phoenix, November 16-18, 1955. Dr. Joseph Bank, Phoenix, Pres.; Dr. Celso C. Stapp, 800 Montana, El Paso, Secy.

Southwestern Surgical Congress, Tucson, Ariz., April 16-18, 1956. Dr. C. R. Rountree, Oklahoma City, Pres.; Dr. C. M. O'Leary, 207 Plaza Court Bldg., Oklahoma City, Secy.

Tri-State Medical Society. Dr. William B. Harrell, Texarkana, Pres.; Dr. Karlton Kemp, 408 Hazel, Texarkana, Ark., Secy.

United States-Mexico Border Public Health Association. Mr. Richard F. Poston, San Francisco, Pres.; Dr. Sidney B. Clark, 314 U. S. Court House, El Paso, Secy.

STATE

Private Clinics and Hospitals Association of Texas, Austin, Dec. 10-11, 1955. Dr. Neil Buie, Marlin, Pres.; Mr. C. H. Rugeley, Wharton, Secy.

Texas Academy of General Practice, Houston, Sept. 16-19, 1956. Dr. J. D. Murphy, Fort Worth, Pres.; Mr. Donald C. Jackson, 308 W. 15th, Austin, Executive Secy.

Texas Academy of Internal Medicine, San Antonio, Dec. 10-11, 1955. Dr. W. W. Bondurant, Jr., San Antonio, Pres.; Dr. George M. Jones, 1314 Medical Arts Bldg., Dallas, Secy. Meetings restricted to members.

Texas Air-Medics Association, Galveston, April 22-23, 1956. Dr. W. A. Ostendorf, Fort Worth, Pres.; Dr. C. F. Miller, P. O. Box 1338, Waco, Secy.

Texas Association of Blood Banks, Houston, Dec. 8-10, 1955. Dr. Jarrett E. Williams, Abilene, Pres.; Miss Marjorie Saunders, 3500 Gaston Ave., Dallas, Secy.

Texas Association of Obstetricians and Gynecologists, Dallas, Feb. 18, 1956. Dr. John Delany, Galveston, Pres.; Dr. Oran V. Prejean, 4317 Oak Lawn, Dallas, Secy.

Texas Chapter, American College of Chest Physicians, Galveston, April 22, 1956. Dr. Samuel Topperman, Tyler, Pres.; Dr. J. O. Armstrong, 3810 Swiss Ave., Dallas, Secy.

Texas Club of Internists. Dr. Charles Barrier, Fort Worth, Pres.; Dr. Charles Darnall, Capital National Bank Bldg., Austin, Secy.

Texas Dermatological Society, Houston, Nov. 14-17, 1955. Dr. E. B. Ritchie, Galveston, Pres.; Dr. Thomas L. Shields, 1216 Pennsylvania Ave., Fort Worth, Secy.

Texas Diabetes Association, Galveston, April 22, 1956. Dr. Mavis P. Kelsey, Houston, Pres.; Dr. Hugo Engelhardt, P. O. Box 2180, Houston, Secy.

Texas Division, American Cancer Society. Mr. Travis Wallace, Dallas, Pres.; Mr. Curt W. Reimann, 1609 Colorado, Austin, Acting Executive Director.

Texas Geriatrics Society. Dr. Donald G. Kilgore, Dallas, Pres.; Dr. J. O. S. Holt, Jr., 3707 Gaston Ave., Dallas, Secy.

Texas Heart Association, Galveston, April 22, 1956. Dr. Kleberg Eckhardt, Corpus Christi, Pres.; Mr. Edgar M. Brown, 404 Jesse H. Jones Library Bldg., Texas Medical Center, Houston 25, Executive Director.

Texas Hospital Association, Dallas, April 3-5, 1956. Mr. Boone Powell, Dallas, Pres.; Mrs. Ruth Barnhart, 2210 Main, Dallas, Secy.

Texas Neuropsychiatric Association, Galveston, April 23, 1956. Dr. Stephen Weisz, Dallas, Pres.; Dr. Bruce H. Beard, 1519 Pennsylvania, Fort Worth, Secy.

Texas Orthopedic Association, Galveston, April 23, 1956. Dr. Paul Williams, Dallas, Pres.; Dr. Margaret Watkins, 3629 Fairmount, Dallas, Secy.

Texas Pediatric Society, Oct. 19-20, 1956. Dr. R. J. Blattner, Houston, Pres.; Dr. James N. Walker, 3616 Tulsa Way, Fort Worth, Secy.

Texas Proctologic Society, Galveston, February 18, 1956. Dr. John McGivney, Galveston, Pres. and Secy.

Texas Public Health Association, Fort Worth, Feb. 26-29, 1956. Mr. Ed Riedel, Austin, Pres.; Mr. H. E. Drumwright, City Health Department, Dallas, Executive Secy.

Texas Radiological Society, Fort Worth, Jan. 20-21, 1956. Dr. Martin Schneider, Galveston, Pres.; Dr. R. P. O'Bannon, 650 Fifth Ave., Fort Worth, Secy.

Texas Railway and Traumatic Surgical Association, Galveston, April 23, 1956. Dr. A. O. Singleton, Jr., Galveston, Pres.; Dr. W. D. Marrs, 306 Broadway, Fort Worth, Secy.

Texas Rheumatism Association, San Antonio, Dec. 9, 1955. Dr. Charles H. Cornwell, Marlin, Pres.; Dr. Warren W. Moorman, 901 W. Leuda, Fort Worth, Secy.

Texas Society for Mental Health, San Antonio, March 1-3, 1956. Dr. Abe Hauser, Houston, Pres.; Mr. John Lane, 2510 San Antonio, Austin, Acting Executive Secy.

Texas Society of Anesthesiologists, Galveston, April 22, 1956. Dr. Joe B. Wood, Dallas, Pres.; Dr. Milton M. Rosenzweig, 200 Wildwood Dr. E., San Antonio, Secy.

Texas Society of Gastroenterologists and Proctologists, Galveston, April 23, 1956. Dr. W. T. Arnold, Houston, Pres.; Dr. O. P. Griffin, 1101 Medical Arts Bldg., Fort Worth, Secy.

Texas Society of Ophthalmology and Otolaryngology, Galveston, 1955. Dr. A. E. Jackson, Fort Worth, Pres.; Dr. Gatlin Mitchell, 1604 Medical Arts Bldg., Fort Worth, Secy.

Texas Society of Pathologists. Dr. C. B. Sanders, Houston, Pres.; Dr. M. H. Grossman, St. Paul Hospital, Dallas, Secy.

Texas Surgical Society, Fort Worth, April 2-3, 1956. Dr. P. I. Nixon, Sr., San Antonio, Pres.; Dr. Albert W. Hartman, 414 Navarro, San Antonio 5, Secy.

Texas Tuberculosis Association, Midland, April 6-7, 1956. Mrs. Joella Terrill Butler, Wichita Falls, Pres.; Miss Pansy Nichols, 2406 Manor Rd., Austin, Executive Secy.

Texas Urological Society, Austin, February 26, 1956. Dr. A. J. Ashmore, Corpus Christi, Pres.; Dr. Rex Carter, 1709 San Antonio, Austin, Secy.

DISTRICT

First District Society, Pecos, Feb. 16, 1956. Dr. Delphin von Briesen, El Paso, Pres.; Dr. W. G. Morrow, Jr., First National Bldg., El Paso, Secy.

Second District Society, Odessa, April 19, 1956. Dr. T. W. Novak, Odessa, Pres.; Dr. Willis T. Carson, 506 North Allegheny, Odessa, Secy.

Third District Society. Dr. M. C. Overton, Jr., Pampa, Pres.; Dr. William Klingensmith, 215 Fisk Bldg., Amarillo, Secy.

Fourth District Society, San Angelo, 1956. Dr. Joe B. Stephens, Bangs, Pres.; Dr. S. H. Martin, 115 S. Park, San Angelo, Secy.

Fifth and Sixth Districts Society, Corpus Christi, July 6-7, 1956. Dr. E. Jackson Giles, Corpus Christi, Pres.; Dr. Maurice Nast, 1126 3rd, Corpus Christi, Secy.

Seventh District Society. Dr. John R. Rainey, Jr., Austin, Pres.; Dr. Leslie C. Colwell, 1410 Brazos. Austin. Secy.

Eighth District Society, Brazoria, 1956. Dr. Carlos Fuste, Alvin, Pres.; Dr. John Childers, Univ. of Texas Medical Branch, Galveston, Secy.

Ninth District Society, Baytown, March 29, 1956. Dr. Joseph T. Dabney, Livingston, Pres.; Dr. Lyman C. Blair, 1212 Rothwell, Houston, Secy.

Tenth District Society, Nacogdoches, Fall, 1955. Dr. J. C. Klein, Lufkin, Pres.; Dr. Rider Stockdale, Jasper, Secy.

Eleventh District Society. Dr. Porter Bailes, Tyler, Pres.; Dr. Hugh F. Rives, Jacksonville, Secy.

Twelfth District Society, Bryan, January 10, 1956. Dr. Van D. Goodall, Clifton, Pres.; Dr. J. H. Johnson, 304 South 22nd, Temple, Secy.

Thirteenth District Society. Dr. P. M. Kuykendall, Ranger, Pres.; Dr. Robert D. Moreton, 815 Medical Arts Bldg., Fort Worth, Secy.

Fourteenth District Society. Dr. J. David Thomas, Denton, Pres.

Fifteenth District Society, Marshall, 1956. Dr. James Harris, Marshall, Pres.; Dr. L. E. Rutledge, Daingerfield, Secy.

CLINICS

Dallas Southern Clinical Society, Dallas, March 12-14, 1956. Dr. Alvin Baldwin, Jr., Dallas, Pres.; Miss Helga Boyd, Medical Arts Bldg., Dallas 1, Executive Secy.

International Medical Assembly of Southwest Texas, San Antonio, Jan. 23-25, 1956. Dr. John C. Parsons, 1125 Nix Professional Bldg., San Antonio, Secy.

New Orleans Graduate Medical Assembly, New Orleans, Feb. 27-March 1, 1956. Dr. Donovan C. Browne, New Orleans, Pres.; Dr. Maurice E. St. Martin, Room 103, 1430 Tulane Ave., New Orleans 12, Secy.

North Texas-Southern Oklahoma Fall Clinical Conference. Dr. E. C. Bebb, Broad, Wichita Falls, Chm.

Oklahoma City Clinical Society Conference. Miss Alma F. O'Donnell, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secy.

Postgraduate Medical Assembly of South Texas. Dr. C. Forrest Jorns, 5644 Lawndale, Houston, Secy.

State Tumor Conference, Wichita Falls, April 4, 1956. Dr. Bailey R. Collins, 925½ Scott, Wichita Falls, Director.

BOARD EXAMINATIONS

Texas State Board of Examiners in Basic Sciences. Mrs. Betty Ratcliff, 407 Perry-Brooks Bldg., Austin, Chief Clerk.

Texas State Board of Medical Examiners. Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth, Secy.

Texas Pediatric Society

Significance of Fat in Diet of Infants—Dr. Arild E. Hansen, Galveston.

Parapertussis—Dr. William L. Bradford, Rochester, N. Y.

Anemias of Infancy and Childhood—Dr. Carl H. Smith, New York.

Congenital Anomalies of Larynx—Dr. Kenneth C. Johnston, Chicago.

Medical Management of Certain Behavior Disorders in Children—Dr. Fred M. Taylor, Houston.

Paroxysmal Tachycardia in Children—Dr. Alvis Johnson, Jr., Dallas.

Infections of Newly Born Infant—Dr. Bradford.

Recent Trends in Management of Common Blood Disorders in Infancy and Childhood—Dr. Smith.

Management of Esophageal Disease in Infants and Children—Dr. Johnston.

The Texas Pediatric Society met October 21 and 22 in Galveston, and the above outlined scientific program was presented. About 255 physicians and members of their families attended. The Baker Milk Company entertained the ladies at a luncheon, and the Mead Johnson Company gave a cocktail party before the banquet October 21. Music for the banquet was furnished by M & R Dietetics Laboratories. At breakfast the next morning, members and their wives were entertained by the Prescription Products Division of the Borden Company.

Dr. Russell J. Blattner, Houston, was installed as president. New officers elected are Dr. E. M. Wier, Fort Worth, president-elect; Dr. James N. Walker, Fort Worth, secretary; and Dr. Halcuit Moore, Dallas, treasurer.

AAPS ESSAY CONTEST

The Association of American Physicians and Surgeons is sponsoring its tenth annual national essay contest for high school students. This year, students entering the contest will have a choice of two subjects, "The Advantages of Private Medical Care" and "The Advantages of the American Free Enterprise System." County medical societies or auxiliaries are invited to sponsor the contest locally. Instructions and full information may be obtained by writing the AAPS Essay Contest Committee, Suite 318, 185 North Wabash Avenue, Chicago 1. Dr. Mal Rumph, Fort Worth, is chairman of the committee.

PERSONALS

Drs. Harvey Renger, Hallettsville, and *Perry J. C. Byars, Jr.,* San Angelo, have been elected to fellowship in the International College of Surgeons.

Dr. A. L. Thomas, Ennis, has been elected to membership in the American Academy of General Practice.

Drs. C. B. Gardner, Merkel, and *Joseph F. McVeigh* and *W. M. Crawford,* Fort Worth, attended the recent convention of the World Medical Association in Vienna.

Dr. William S. Fields, Houston, presented a scientific paper at the recent meeting in Hot Springs, Va., of the American Academy of Neurological Surgery.

Dr. Charles M. Henner has resigned his position as mayor of Santa Anna and has gone to Trinidad, British West Indies, as a medical missionary. He will be chief of surgeons at the Port of Spain Adventist Clinic. The story of Dr. Henner's career as physician, preacher, and mayor appeared in the October 24 issue of *Life.*

Dr. E. E. Muirhead, Dallas, served as chairman of the scientific session of the November meeting of the American Association of Blood Banks in Chicago.

Dr. Gladys J. Fashena, professor of Pediatrics at Southwestern Medical School of the University of Texas, Dallas, has been reelected to another five year term on the board of governors of Playtex Park Research Institute, the pediatric research foundation of Dover, Del.

Dr. Jarrell E. Miller, Dallas, presented a paper on angiocardiography at the October meeting of the Gulf Coast Clinical Society in Pensacola, Fla.

Dr. James McBride, Fort Worth, read a paper at the recent meeting of the National Tuberculosis Association in Milwaukee.

Dr. Frank J. McGurl, Houston, is a new member of the executive council of the Association of Life Insurance Medical Directors of America.

Dr. H. F. Nicholson, Sr., Wheeler, has recently returned from a trip through the Holy Land and several European countries. The tour was sponsored by a Methodist agency, and members of the group studied the religious situation of each country. In several countries, top diplomats conferred with the group on political and socio-economic conditions.

Dr. W. L. Crosthwait, Waco, has almost finished his autobiography, "The Last Stitch," which will be published by the J. B. Lippincott Company this year.

Dr. A. W. Cowin, Dalhart, has sent more than $6,000 worth of medical equipment to South Korea through the American-Korean Foundation.

Dr. R. R. Wills, Hereford, has been elected to the board of directors of the Commonwealth Credit Corporation, Houston.

Dr. T. H. Cobble, Rusk, was the honor guest at a surprise birthday party given for him by the staff of the Rusk Memorial Hospital.

Early in September, *Dr. and Mrs. E. H. Snyder,* Canadian, celebrated their golden wedding anniversary, their fiftieth year as residents of Canadian, and Dr. Snyder's fiftieth year as a doctor of medicine.

Dr. Michel Damiani and Miss Nell Pack were married in June in Houston. On July 22, *Dr. Ruth Little* and Frederick Darnell were married in Fort Worth. Miss Thelma Irene Cain became the bride of *Dr. Donald Mayo Lowery* on August 2 in Austin. *Dr. Isadore Dravin* and Miss Helen Patrick were married September 30 in Amarillo.

New parents of girls are *Dr. and Mrs. William S. Wilson,* Carrizo Springs, August 31; *Drs. Georgia and Carey Leget, Jr.,* June 11 in Austin; and *Dr. and Mrs. Edward White,* Galveston, July 5.

Girls also were born to the following physicians and their wives, all of Fort Worth: *Dr. and Mrs. W. R. Leon, Dr. and Mrs. A. R. Ponton, Dr. and Mrs. N. E. Ross, Dr. and Mrs. J. C. Tom, Dr. and Mrs. J. S. DeBusk, and Dr. and Mrs. S. C. Smith.*

Boys were born to *Mr. and Mrs. William C. Ghormley,* July 29 in Corpus Christi, and *Drs. Arthur and Frances Jansa,* August, in Galveston.

New parents of boys also are *Dr. and Mrs. C. D. Fitzwilliam and Dr. and Mrs. H. W. Thomas,* both of Fort Worth, during the summer.

AUTOMOTIVE CRASH STUDY BEGINS

This month Texas was added to the states which are cooperating in the automotive crash injury studies being carried on by Cornell University Medical College under a grant from the United States Department of Defense and the Public Health Service. Following endorsement of the study by the House of Delegates of the Texas Medical Association last spring, upon recommendation of the Committee on Public Health, plans were worked out to include physicians in McLennan, Smith, and Travis Counties in the cooperative venture backed also by the Texas State Department of Health and the Department of Public Safety. Other areas may be added later.

Information about the crash studies directed by Cornell has figured in the public press in recent months partly because the results of preliminary research are being incorporated into the design and accessories of new model automobiles. The object is greater safety for passengers, and already statistics point to the desirability of such features as safety belts, doors which will not spring open upon impact, collapsible steering columns, elimination of sharp edges and knobby projections, and padding of instrument panels.

Physicians in the three areas chosen for study in Texas have been asked by letter from the President of the Association, Dr. J. Layton Cochran of San Antonio, to do their share in compiling data for transfer to Cornell for analysis. Uniform medical blanks on which can be shown the location, type, and severity of injuries suffered in automobile accidents are available to all physicians in these areas. They are asked to fill in this information on each person involved in a passenger automobile accident on the rural highways of the counties previously named whose injuries are sufficient to require the attention of a doctor. Meantime, the state police are recording data on the accident and the condition of the automobile and are photographing the automobile in such a way that the injuries of the passenger may be compared with the design of the machine. It is this correlation of data, especially with the addition of careful medical records, that has made the Cornell studies unique and has encouraged already the application of resulting statistics to automobile design in an effort to reduce the morbidity and mortality from automobile accidents from the 1953 figures released by the National Safety Council of 38,300 deaths and 1,350,000 persons injured.

Methods used in the automotive crash project were tested in similar studies on airplane accidents begun about 12 years ago which have resulted in redesigning of aircraft to the noticeable benefit of fliers. In an effort to build up enough cases for drawing valid conclusions, the automobile research, the first to concentrate on the cause of injury rather than the cause of accident, has been pursued in North Carolina, Maryland, Virginia, Indiana, Connecticut, Arizona, Vermont, and Minnesota. With the addition of Texas to the list, it is anticipated that more than 2,000 cases will be tabulated by mid-1956.

St. David's Hospital Now Open

The new St. David's Community Hospital was opened on September 11 in Austin. It has 104 electrically controlled beds, 50 private rooms, and 25 semiprivate rooms. Each room has individually controlled air conditioning and a private bath, and oxygen is available simply by plugging it in. There are two nursing stations on each floor, plus a center supervisory station which can handle all patients when service is light. A central supply system makes possible the sterilization of many day-to-day supplies, which are then sent by electric dumb waiter to smaller supply storage rooms throughout the hospital.

The latest type of equipment in lights, clocks, tables, and x-ray screens are provided in the operating rooms, into which oxygen, nitrous oxide, and suction are piped. In the maternity department is an admitting room where the prospective mother can be prepared, sent to a labor room, then rolled into the delivery room on the labor bed, thus eliminating the necessity of a move. Similarly, x-ray patients can be photographed on a stretcher or emergency bed without painful moving.

TEXAS SURGICAL SOCIETY

The Texas Surgical Society met in Houston early in October, and 115 members and 86 guests attended. Twenty-four scientific presentations filled the two-day schedule, and entertainment included two cocktail parties and a banquet.

Officers of the Society for the coming year are Dr. P. I. Nixon, Sr., San Antonio, president; Dr. J. E. Dailey, Houston, first vice-president; Dr. Hub E. Isaacks, Fort Worth, second vice-president; Dr. Robert L. Sewell, Fort Worth, treasurer, and Dr. Albert W. Hartman, Jr., San Antonio, secretary. Dr. John Warner Duckett, Dallas, was elected a member of the Council to succeed Dr. Frank A. Selecman, whose term expired. The next meeting will be held April 2 and 3, 1956, in Fort Worth.

TEXAS ACADEMY OF GENERAL PRACTICE

New officers of the Texas Academy of General Practice are Dr. James D. Murphy, Fort Worth, president; Dr. George V. Launey, Dallas, president-elect; Dr. Cecil M. French, San Angelo, vice-president; Dr. John M. Smith, Jr., San Antonio, treasurer; and Dr. Carlos Fuste, Alvin, delegate to the American Academy of General Practice.

TEXAS RHEUMATISM ASSOCIATION

The Texas Rheumatism Association will meet in San Antonio December 9, and the principal speaker will be Dr. Claude N. Lambert, acting head of the Department of Orthopedics, University of Illinois Medical School, Chicago. During the morning, there will be a clinical session at the Brook General Hospital, and scientific papers will be presented during the afternoon.

JOINT BLOOD COUNCIL FORMED

The Joint Blood Council has announced that its national headquarters have been opened in Washington, D. C., and that Dr. Frank E. Wilson, Washington, will serve as executive vice-president and secretary. The new group is composed of representatives from the American Association of Blood Banks, the American National Red Cross, the American Medical Association, the American Hospital Association, and the American Society of Clinical Pathologists. Its objective is to coordinate all activities in the field of procuring, processing, preserving, and distributing blood and blood derivatives. Dr. Wilson formerly was director of the Washington office of the AMA.

University of Texas Medical Branch

The Medical Research Foundation of Texas has been established and incorporated with offices in Galveston at the University of Texas Medical Branch. It is an independent organization, and its purpose is to solicit funds for the support of research in the medical and dental schools of Texas. The board of directors includes Drs. F. J. L. Blasingame, Wharton; J. Layton Cochran, San Antonio; Donald Duncan, Charles G. Dibrell, John W. McCullough, John E. Johnson, Jr., Titus H. Harris, E. J. Poth, Carl A. Nau, and Hyman W. Paley, all of Galveston; and Dan Moody, Austin.

The Babe Cancer Fund has been established at the John Sealy Hospital, Galveston, by Mrs. Babe Didrikson Zaharias and her husband, George Zaharias. Mrs. Zaharias recently was a patient in the hospital for some time. Headquarters for the fund will be in Galveston, but grants for cancer research will be given to other institutions as the fund grows.

Dr. Stephen R. Lewis is the new director of the Postgraduate Division, taking the position formerly held by Dr. E. Ivan Bruce.

Dr. E. Cowles Andrus, president of the American Heart Association, spoke on October 27 as a special guest lecturer. Immediately following his lecture, a brain conference, dealing with general neuropathology, was held.

POSTGRADUATE COURSE OFFERED

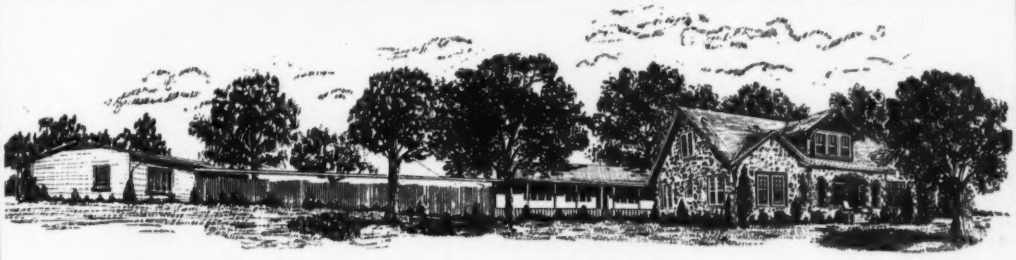
General Practice Review—January 16-21, 1956, Denver. This will be a six-day course designed to meet the needs of the general practitioner, and will be sponsored by the University of Colorado Medical Center. One day will be devoted to each of six important areas of practice as follows: Monday, medicine; Tuesday, pediatrics; Wednesday, surgery; Thursday, psychiatry and psychosomatic medicine; Friday, obstetrics and gynecology; and Saturday, fluid and electrolyte balance. A detailed program and complete information may be obtained by writing to the Director of Postgraduate Medical Education, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20.

LIFE INSURANCE MEDICAL RESEARCH AWARDS

The University of Texas Medical Branch and the Southwestern Medical School of the University of Texas have received grants-in-aid for research on diseases of the heart and arteries from the Life Insurance Medical Research Fund. The University of Texas Medical Branch, Galveston, received $15,400 in grants for research by Dr. H. G. Swann on the functional distension of the kidney. For research by Dr. John C. Porter on brain control of sodium excretion, the Southwestern Medical School of the University of Texas will receive a grant of $12,100. Dr. Oscar W. Portman, Fort Worth, received a postdoctoral fellowship from the Life Insurance Medical Research Fund for study with Dr. Fredrick J. Stare at the Harvard School of Public Health, Boston. In the first decade of its existence, the research fund has given more than $7 million for heart research.

New State Hospital Buildings Dedicated

Two new ward buildings, the first major addition to the Big Spring State Hospital since its construction 15 years ago, were dedicated recently. The additions will virtually double the capacity of the hospital; they will accommodate about 365 patients. The hospital, originally designed for 313 patients, has been accommodating about 500.



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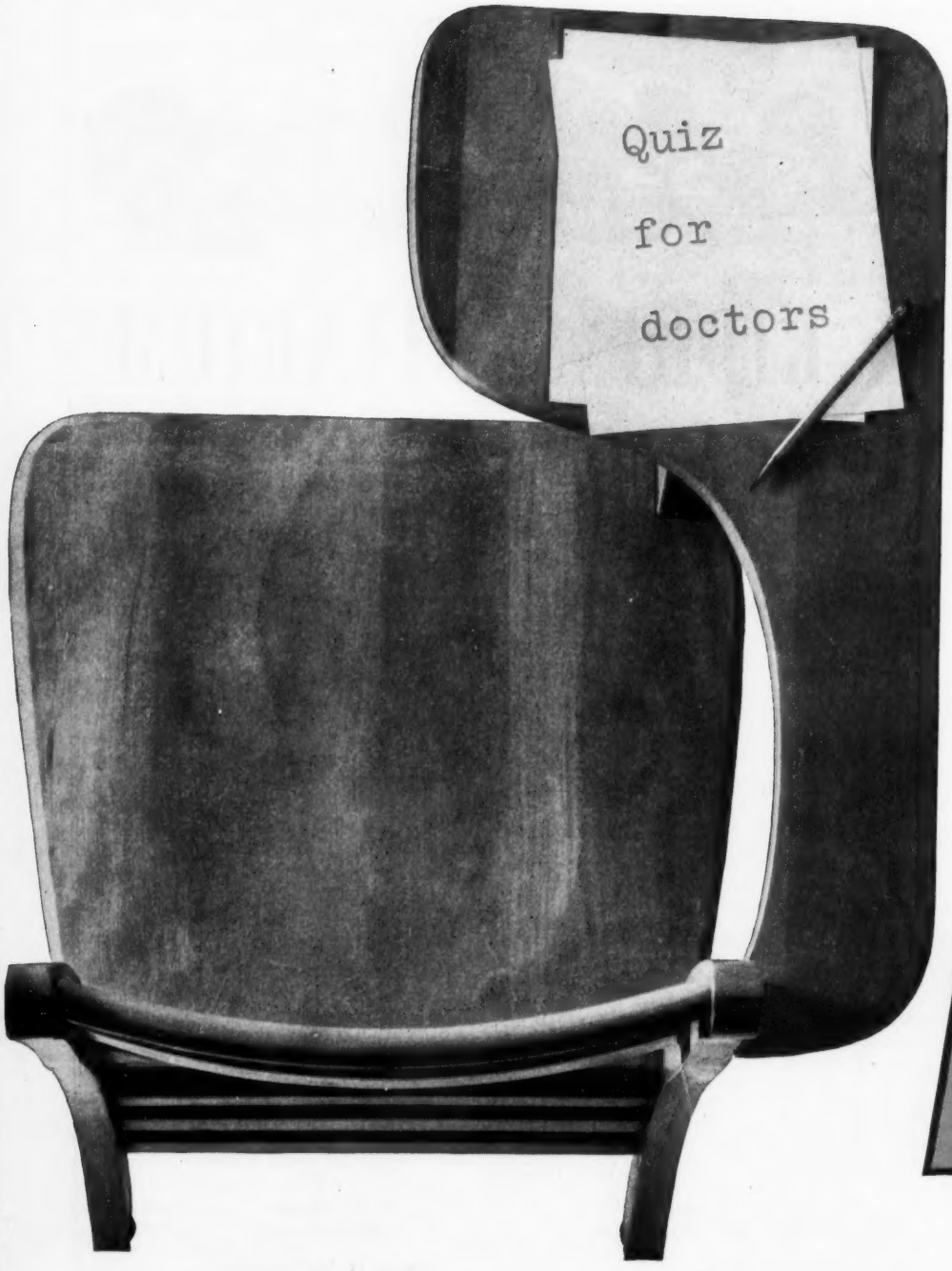

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Q. What are some of the advantages of ACHROMYCIN?

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A. It has proved effective against a wide variety of infections, caused by Gram-positive and Gram-negative bacteria, rickettsia, and certain viruses and protozoa.

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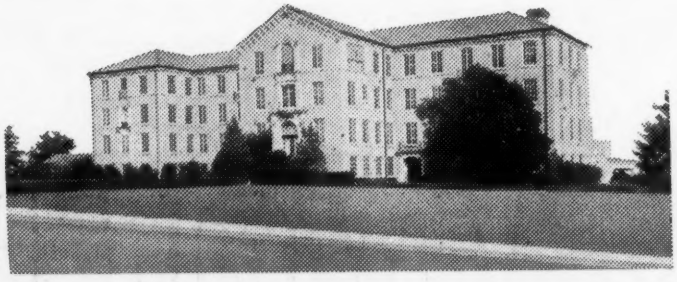
James K. Peden, M. D., Associate Psychiatrist
C. L. Jackson, M. D., Resident Psychiatrist

Mrs. Anne Gilcrease, R. N., Director of Nurses
Ralph M. Barnette, Jr., Business Manager
Miss Geraldine Skinner, Director Occupational Therapy



WICHITA FALLS CLINIC-HOSPITAL

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E. E. Stewart, D.D.S., Oral Surgery

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THE COMMON COLD

Has a woman who knew that she was well-dressed ever caught a cold? No, not even when she had scarcely a rag to her back.—Friedrich Wilhelm, Nietzsche; Genealogy of Morals, Maxims and Missiles, 25.

In 1786, Hayes published a book entitled, "A Serious Address on Colds," in which he voiced the following causes of the common cold: "a cold arises from the effect of cold or moist air, from going too thinly clad or exposing the body to cold air." Many writers of the early days said that colds were caught by draughts, sudden changes in temperature, wet feet, dietary indiscretion, emotional upsets and the influence of comets and other astral bodies. Most frequently a cold is said to be "caught" from another person, and when one "catches" the cold, he is resentful, particularly with the one from whom he might have "caught" it.

We know that the common cold has been with us for at least two thousand years, and that the sufferers perhaps were saying long ago, as they are today, "Why can nothing be done?" There has always been a great deal of folklore and superstition attached to the treatment of the common cold: the camphor bag hung around the neck, the soaking of the feet in hot water, the famous mustard plaster, and many other home remedies. The hardening of the body through outdoor exercise, cold baths, and other so-called conditioning measures has been somewhat discredited during two wars, when so many men lived under such conditions and were not immune to the common cold.

Common colds are the largest single source of lost man hours, and it has been estimated that the cost of colds is one and one half million dollars annually. It has been repeatedly stated that most people have one to three colds per year. In the summer months, 1 person in every 20 has a cold. The most common colds occur in February, and the least, in July. In the west central states, where climatic changes are greater, we find the greatest number of colds. The higher income families have 6 per cent fewer colds than the lower income groups. Children under 10 years of age are subjected to more colds than any other age group.

Practically every new drug has been given a try at the common cold, some being praised but soon discarded, some continuing to be of value. But the common cold, with its nuisance and misery, continues to out-live all "sure cures." The hopeless surrender is, "A treated cold will run a fortnight; an untreated cold will run two weeks."

References on the cold available in the Memorial Library of the Texas Medical Association include:

American Institute of Public Opinion: *A Report on the Incidence of the Common Cold,* Princeton, N. J.

Clark, G. A.: *Effective Treatment for Common Colds,* Nebraska M. J. *39:*480-482 (Nov.) 1954.

Fabricant, N. D.: *The Weather and the Patient's Nose,* Eye, Ear, Nose, & Throat Monthly *34:*191-192 (March) 1955.

Flippin, H. F.: *The Common Cold from the Viewpoint of the Internist,* Pennsylvania M. J. *58:*29-31 (Jan.) 1955.

Gohd, R. S.: *The Common Cold,* New England J. M. *250:*687-691 (April 22) 1954; *250:*722-726 (April 29) 1954.

Smith, R. O.: *Speculations on the Common Cold,* Virginia M. Monthly *82:*127-129 (March) 1955.

Stevens, F. A.: *Acute Asthmatic Episodes in Children Caused by Upper Respiratory Bacteria During Colds, With and Without Bacterial Sensitization,* J. Allergy *24:*221-226 (May) 1953.

CONTRIBUTIONS TO THE LIBRARY

Grateful acknowledgment is made by the Texas Medical Association Memorial Library for the following recent gifts:

American Cancer Society, Texas Division, 6 films.

Dr. J. E. Douglas, Austin, series of 11 anatomic illustrations.

Hugh Eckols of the University YMCA of Austin, 3 books.

Dr. R. W. Kimbro, Cleburne, 5 volumes of Transactions of the Texas Medical Association.

Dr. and Mrs. Joseph H. McCracken, Jr., Dallas, 1 book, 1 mortar and pestle.

Mrs. J. H. McCracken, Sr., Mineral Wells, and Dr. and Mrs. Joseph H. McCracken, Jr., Dallas, in memory of Dr. J. H. McCracken, Sr., 267 books and journals. (Acquired through the Dallas County Auxiliary.)

Dr. B. E. Pickett, Sr., Carrizo Springs, 56 journals.

Dr. Morris Polsky, Austin, 112 journals.

Dr. Nelson L. Schiller, Austin, 16 journals.

Texas Tuberculosis Association, 1 film.

MOTION PICTURES FOR LOAN

Man Alive

Sound, color, 13 minutes. (Courtesy of the American Cancer Society.)

This lay movie on cancer is a cartoon type film. It is an impressive statement of the importance of recognizing and taking necessary steps for the diagnosis and cure of cancer. The importance of seeking competent medical advice when cancer is suspected is emphasized by drawing a parallel between the problems of physical symptoms and the symptoms of an automobile "in distress." The film should be interesting and helpful for lay audiences.

Rodney

Sound, color, 10 minutes. (Gift of Texas Tuberculosis Association.)

This lay film on tuberculosis is an animated cartoon, and it treats the serious problem of tuberculosis in a lighthearted way that will appeal to lay people of all ages. Rodney, a typical American boy from a typical American town, is thrown for a temporary loss when, during a routine physical check-up his doctor finds that Rodney has tuberculosis. The doctor explains what his disease is and what must be done to cure it. Rodney learns a lot about how tuberculosis spreads, how rest and hospital care can heal it, and what people can do to avoid it. Rodney's rest cure in a tuberculosis hospital is shown, and after months have passed, Rodney returns to his family and friends, cured of the disease.

Cancer of the Urinary Bladder

Sound, color, 48 minutes. (Courtesy of the American Cancer Society.)

This film is highly recommended for general practitioners and also would be of value in teaching residents, interns, and medical students. It describes the significant signs and symptoms and the techniques used in differential

diagnosis of cancer of the bladder. Therapeutic approaches are discussed. Clinical case histories, descriptions of gross and microscopic pathology, results of varied treatments, preoperative evaluation procedures, techniques of postoperative care, and the rehabilitation of patients after extensive surgery are all defined. The incidence and location of bladder tumors and the urographic findings in a patient with carcinoma of the bladder are discussed. A strong plea is made to the general practitioner for the early recognition of the symptoms of bladder tumors. The film is well organized, and charts and diagrams are used effectively.

Lymphomas and Leukemias

Sound, color, 55 minutes. (Courtesy of the American Cancer Society.)

This film emphasizes the aspects of clinical and pathologic diagnosis of lymphomas and leukemias. The technique and use of bone marrow aspiration are presented, and indications for radiotherapy and chemotherapy are discussed. Case material is used to illustrate therapeutic regimens. Valuable information is presented in the film, but it has been criticized for its failure to distinguish between lymphosarcoma and Hodgkin's disease and its failure to mention the advisability of considering surgical removal of early lesions, which many authorities consider significant. In general, the color and sound are good. The film is recommended for hospital staff conferences and medical students.

BOOK NOTICES

[1]Pomp and Pestilence

RONALD HARE, M. D., *Professor of Bacteriology in the University of London at St. Thomas' Hospital Medical School. 224 pages. $5.75. New York, Philosophical Library Inc., 1955.*

The author is a bacteriologist who writes eruditely but entertainingly about infectious diseases. The book is written for the nonmedical reader, and the author has accomplished the difficult feat of presenting medical information so that it can be read and understood by those not versed in medical terminology nor educated in medical lore.

The purpose of the book is to relate the origins and development of various infections and to show how some of them have become raging pestilences. A brief historical review describes the course of the disease, its prevalence, and its effect on the community and, in some instances, how the course of history turned upon it. The book tells of how kingdoms rose and fell, how armies conquered and were conquered, how populations were decimated, and how countries lost their place in the sun, not because of military inferiority but from the ravages of pestilence. There is the story of the mastery of some of these dread diseases until they are of no more importance, and the writer speculates upon the effect of these, and victories to come, upon the future growth and development of our populations and our civilization. Altogether this is a very readable and, at the same time, an authoritative little book which should be of real interest to the medical as well as the nonmedical reader.

[2]Management of Addictions

Edited by EDWARD PODOLSKY, M. D., *Department of Psychiatry, Kings County Hospital, Brooklyn, N. Y. 413 pages. $7.50. New York, Philosophical Library, 1955.*

The editor of this book has compiled 35 well-selected, up-to-date articles, most of which are written by physicians, concerning one of the great problems of our times, addictions. The book is divided into two parts. Part one, consisting of about three-fourths of the book, deals almost exclusively with the management of alcohol addiction; part two contains nine articles devoted to drug addiction.

The problem of alcohol addiction is approached from every angle, but taken as a whole the approaches and treatments may be classified as therapeutic, psychiatric, social, and their combinations. The chapters on alcoholism as a genetotropic disease are worthy of special study as they present an excellent diagrammatic classification of abnormal drinkers and show exhaustive research in the field of biochemistry and nutrition as related to alcoholism. The informative articles on conditioned reflex, group treatments, and the use of new drugs promise an interesting field for further study.

Part two contains nine articles devoted to treatment of drug addiction and is divided into two phases: (1) withdrawal of drugs and (2) rehabilitation and psychiatric treatment. One chapter on the controversial subject of electroconvulsive therapy presents several interesting cases and advises additional study.

The etiology of both addictions is considered, as is the combined treatment for both as they frequently coexist. Throughout the book many case histories, mostly from institutions, are given in detail as well as conclusions by the authors and references to articles not included in the book.

In nearly all the cases presented, patients are of necessity hospitalized, institutionalized, or need outpatient facilities at some time. It is essential that this fact be borne in mind as such facilities are not always available. The book should be of special value to psychiatrists and institutional physicians and of interest to general practitioners.

[3]The Plasma Proteins in Pregnancy

HAROLD C. MACK, M. D., *Chief, Department of Obstetrics and Gynecology, Harper Hospital; Associate Clinical Professor, Obstetrics and Gynecology, College of Medicine, Wayne University, Detroit. 118 pages. $3.75. Springfield, Ill., Charles C Thomas, 1955.*

In approximately 100 pages the author summarizes all recent information concerning the blood proteins and their functions. The text is conveniently divided into sections devoted to the nonpregnant state, normal pregnancy, toxemia and other disorders of pregnancy, and fetal plasma proteins. This arrangement makes for easy reference to the excellent charts and tables of normal values and the variations found in several disease conditions under consideration.

The importance of this book primarily stems from the fact that the determinations of blood proteins have been made by the relatively new method of electrophoresis. This highly accurate method establishes a reliable standard of values and explains the marked variation in the values found by earlier workers with their handicap of less exact chemical determinations.

Included in the text is a thought-provoking discussion of the basis for the many theories concerning the etiology of toxemic states. The correlation of these conditions with their blood protein values makes for additional speculations on the probable causes and the proper corrective measures. One interesting quotation: "Although blood protein analyses do not demonstrate specifically that nutritional inadequacy is responsible for the breakdown in the maternal economy which results in 'toxemia' of pregnancy, there is strong supporting evidence to indicate that a relationship exists between the nutrition of the human mother, the

[1]*J. Harvey Black, M. D., Dallas.*
[2]*C. M. Cash, M. D., San Benito.*
[3]*J. R. Harris, Jr., M. D., Lubbock.*

health and survival of her offspring, and her own ability to perform the functions of reproduction without disease."

The author's readable style and the freshness of the viewpoint expressed in this small volume make delightful as well as educational reading, and a valuable reference book for any physician's library.

[4]The Cerebrospinal Fluid

S. LUPS, M. D., *Medical Director, Municipal Hospital, Rotterdam, Formerly head of the Biochemical and Cytological Laboratory, Neuro-Psychiatric Clinic, University of Utrecht (The Netherlands); and* A. M. F. H. HAAN, M. D., *Head of the Biochemical, Cytological and Bacteriological Laboratory, Sanatorium "Oranje Nassau's Oord," Renkum (The Netherlands). 350 pages. $9.50. Houston, Elsevier Publishing Company, 1954.*

This book is divided into four major sections. The first section deals with the anatomy and physiology of the cerebrospinal fluid. The next section is rather short and deals primarily with techniques of lumbar puncture, cisternal puncture, and ventricular puncture and their indications and dangers. The third section is the most important one, and this is the chapter that will be found to be most useful. There is, first, a thorough discussion of the normal contents of spinal fluid. It is thought that the book should have more of the chemical contents of the spinal fluid, both normally and pathologically, expressed not only in milligrams per cent but also in milliequivalents per liter, since there is now a greater tendency in general in medicine to go to the more useful latter expression. The second portion of this section deals with the various changes in spinal fluid in all types of pathologic conditions that one might encounter. Actually this portion is quite detailed and makes an excellent source of reference in treating or investigating clinical conditions. The last section deals primarily in methodology, and describes in detail the actual performance of various chemical microscopic, and other tests made on the fluid. Certainly the book is made more complete by having this section, and it is quite useful for chemical laboratories. The printing of the book is excellent. It is very readable, and the quality of the paper itself is high. This book would be a welcome addition to the library of every physician, particularly neurosurgeons, neurologists, and psychiatrists.

[5]An Atlas of Pelvic Operations

LANGDON PARSONS, M. D., *Professor of Gynecology, Boston University School of Medicine; Chief, Department of Gynecology, Massachusetts Memorial Hospital;* HOWARD ULFELDER, M. D., *Assistant Clinical Professor of Gynaecology, Harvard Medical School; Assistant Surgeon, Massachusetts General Hospital; 231 pages. $18. Philadelphia, W. B. Saunders Company, 1953.*

Every surgeon who does pelvic operations should find information of real value in this contribution. Each procedure is presented in a step by step fashion, on concise but explicit pages with appropriate illustrations. Easy reference is further enhanced by convenient grouping of operations and by excellent indexing both as to procedure and condition. The illustrations are excellent line drawings by Miss Mildred B. Codding and deserve special mention because of their forcefulness and simplicity. An attempt is made to detail the answer to almost any surgical problem in the pelvis, although no effort is made to illustrate all operations proposed in any given situation. This may be interpreted by some as a criticism, but to the reviewer it tends to alleviate confusion and unnecessary differentiation of unimportant details. The volume is convenient to use and suitably adaptable to various conditions of use in reference despite the rather large page size. The summarizations of indications, limitations, pitfalls, and helpful hints regarding each procedure are especially valuable and indicative of much thoughtful reflection and experience on the part of the authors. The paper is of good quality and the printing is satisfactory. The book is recommended to all surgeons whose work includes operations in the female pelvis.

The Physician and His Practice

Edited by JOSEPH GARLAND, M. D., *Editor, The New England Journal of Medicine. 270 pages. $5. Boston, Little, Brown and Company, 1954.*

For the young doctor looking for a world of information covering the problems of mapping a medical career, this book should be a great help.

There are 19 subjects each discussed by an outstanding authority. This book would be suitable for a doctor's wife or as a reference book on medicine and the law. Each subject is of current interest. Drugs and medical supplies are broken down by drugs, equipment, additional drugs that might be useful, and surgical and laboratory materials. This is followed by a chapter on the office and related business aspects in which one can find the total cost of necessary equipment. There is also suggestion on the selection of an employee and helpful advice on the proper kind of a medical library with some information on medical writing.

Some topics are treated in generalities while others are specific. The subjects include practically all phases of medical practice and social relations. This book should not be considered just for the young physician, for the older ones may find many worth-while suggestions.

[6]Lung Cancer

SEYMOUR M. BARBER, *Associate Clinical Professor of Medicine, University of California Medical School; Lecturer in Diseases of the Chest, University of California School of Public Health. 157 pages. $4.75. Springfield, Ill., Charles C Thomas, 1954.*

This excellent treatise on lung cancer points out there is no such thing as a classic case of this condition. Each one presents a different problem.

The role of enzymes and the association of bronchogenic cancer with tuberculosis and other chronic infectious processes are discussed. Chemical irritants and industrial hazards are discussed also. In regard to smoking, the author is inclined to accept cigarette smoking as a predisposing cause, but whether the offending factor lies in one of the coal tars used in processing the tobacco or in the long burning paper is undetermined.

Under the section on metabolism and heredity it is observed that the hormonal factor is overwhelmingly important in tumors in sex conditioned areas such as mammary, testicular, and prostatic tumors. It is also a point that in bronchogenic carcinoma there seems to be a predilection for males to be more involved than females and that the age of victims is for the most part above 40 years. In the field of heredity it is observed that 30 per cent of the admissions to Cook County Hospital are Negro whereas patients of that race account for only 9 per cent of the bronchogenic carcinomas present.

In the discussion of histopathology the origin, spread,

[4]*William G. Evans, M. D., Lubbock.*
[5]*William F. McLean, M. D., Austin.*
[6]*Joe C. Rude, M. D., Austin.*

and involvement of squamous cell carcinoma, adenocarcinoma, and undifferentiated carcinoma are examined.

The book records symptoms of lung cancer in their order of frequency as respiratory symptoms in 85 per cent of cases, cough 67 per cent, chest pain 43 per cent, dyspnea 42 per cent, hemoptysis 35 per cent, and dysphagia 5 per cent. General symptoms appear in 61 per cent, weight loss 49 per cent, weakness 36 per cent, anorexia 16 per cent, and digestive disturbance 4 per cent. A chart showing the frequency of each type of tumor metastasizing to the various organs is informative.

The contributions that can be made by fluoroscopy, laminography, bronchography, and plain films of the chest as well as angiography are discussed. It is emphasized that diagnostic techniques are not infallible and at surgical exploratory examinations the physician must be prepared to accept with good grace cases of pneumonitis, abscess, and other lesions mistaken for malignant ones. Other diagnostic aids such as exploratory thoracotomy, biopsy, examination of pleural fluid, and Papanicolau staining of bronchial secretions are considered. Five bronchial smears in succession are estimated to give an accuracy of 90 per cent.

Surgery is apparently our only real attack on the disease, and the important improvement now to be made is in an accurate evaluation of the cases that are operable and those that are inoperable. Some concession is made to palliative surgery, but rigid criteria are set up for undertaking these cases and criticism is quite pointed for operative procedures that do more harm than good.

In discussing the nonsurgical techniques the author evaluates hormonal therapy in sex conditioned tissues and the development of chemotherapeutic agents. Folic acid antagonists are discussed in their role of enzyme inhibitors, and biochemically the author believes that this is one of the more promising avenues of investigation. Irradiation he thinks finds its greatest use in the relief of bone and nerve pain.

In the reviewer's opinion this is one of the better monographs on bronchogenic carcinoma, and it is recommended for anyone who has to deal with chest malignancies.

[7]Muscular Contraction

M. DUBUISSON, Ph. D., *Director, Laboratory of General Biology, University of Liege, Liege, Belgium. 243 pages. $6.50. Springfield, Ill., Charles C Thomas, 1954.*

This monograph is publication 144, American Lecture Series, the Bannerstone Division of American Lectures in Biochemistry and Biophysics.

There are three chapters dealing with a complex subject of the physio-biochemical properties of the muscle tissue with special stress on the protein contents. The author is well qualified in his investigative and experimental work on the sarcoplasm.

The author poses to answer two questions: (1) What do we know about the chemical composition of muscle? (2) What do we know about what happens when a muscle shortens and relaxes?

His references cover 87 pages, a compendium mostly desired by research men and investigators on this highly important subject.

This book, which is a treatise-lecture, would be limited in its distribution and circulation, but it is worthy of the highest commendation for the painstaking work and efforts in a subject that is highly scientific and technical.

[7]*Solomon D. David, M. D., Houston.*

ORGANIZATION SECTION

TEXAS MEDICAL ASSOCIATION

GROUP INSURANCE POLICIES

For the convenience of the members of the Texas Medical Association, the insurance company which is offering their group casualty insurance program will make the effective date on any policy coincide with the expiration date of other policies, or, if the buyer chooses, the new policy may become effective immediately. This new group disability insurance program, which is being made available to all members up to 70 years of age, is administered by the Charles O. Finley Company and is underwritten by the Lumbermens Mutual Casualty Company.

Under such a group program, common dates for payment of premiums are necessary for everyone, and the dates for payments of premiums will be November 1 and May 1 if paid semiannually, and November 1 if paid annually.

Four plans are available, plans A, B, C, and D, with descending values and premiums. Weekly benefits vary from $150 under plan A to $50 under plan D. Members up to age 60 may apply for any of the four plans; members age 60 to 65 may apply for plans C or D; and members age 65 to 70 may apply for plan D. Once enrolled, however, a physician may continue in the same plan until he is 70 years old. After the charter enrollment period closes, members who are more than 60 years old will not be accepted; the enrollment period ends January 1, 1956. Benefits received are tax free.

Additional details about this Texas Medical Association sponsored disability insurance appear in the advertising pages of this JOURNAL, have been mailed to members, and may be obtained upon inquiry addressed to the central office of the Association.

MEDICAL STUDENTS' DAY

Medical Students' Day, sponsored by the Texas Medical Association, will be held at Baylor University College of Medicine, Houston, on December 2, and at the University of Texas Medical Branch, Galveston, on December 3. The basic program will be the same for both schools, and will be as follows:

Your Practice and Public Opinion—Dr. William M. Crawford, Fort Worth.
You and the Medical Society—C. Lincoln Williston, Austin.
Legal Aspects of Your Practice—Philip R. Overton, Austin.
The Business Side of Your Practice—Dr. Harvey Renger, Hallettsville.
The Physician Versus the Man—Dr. J. Layton Cochran, San Antonio.

Dr. Thomas L. Royce, Houston, a member of the Texas Medical Association's Committee on Public Relations, will preside at the Baylor program, and Dr. Denton Kerr, a member of the Board of Trustees, will deliver greetings. After the program a dinner will be held, at which Dr. James E. Pittman, president of the Harris County Medical Society, will preside. Dr. J. T. Billups, chairman of the Board of Councilors, will speak on "Medical Ethics."

At the Galveston program, Dr. Bailey Calvin, Ph. D., dean of the University of Texas Medical Branch, will preside, and Dr. E. S. McLarty, Sr., Galveston, coordinator of Medical Students' Day, will speak about the objectives of

the program. The aforementioned program will be presented, and a luncheon will be held at which Dr. J. C. Magliolo, Dickinson, president of the Galveston County Medical Society, will preside. Dr. James H. Wooten, Jr., Columbus, Councilor for the Eighth District, will speak on "Medical Ethics."

Membership Reporting Changed

The constantly increasing membership of the Texas Medical Association, the complexities of the regulations regarding collection of dues for this organization and for the American Medical Association, and the frequent changes in county society secretaries have led the Board of Trustees of the Texas Medical Association to authorize a new procedure for the collection, reporting, and recording of dues. The new method, now going into effect for use with 1956 dues, makes use of International Business Machines and is expected to make for more accurate as well as easier processing by county society secretaries and by the central office staff.

Most members of the Association will be hardly aware of the new procedure, for they will continue to pay their annual dues to the county secretary as before—the earlier the better to be sure that no benefits of membership are lost through failure to retain membership in good standing. Secretaries are receiving detailed instructions by mail and are requested to hold dues received for 1956 until they have received the cards and forms necessary to institute the new program.

The new membership year begins January 1. Dues paid prior to that date will assure an unbroken membership. Payment early in the year will obviate complications in registering at the annual session and keep subscription to the JOURNAL in force.

CONFERENCE OF COUNTY SOCIETY OFFICIALS

Newly elected officers of county medical societies will have a chance to begin their year of service well informed on the problems of the medical profession in general, and on the ways in which the Texas Medical Association can help solve some of those problems at the county society level. Meeting in Austin on January 21, just prior to the January 22 meeting of the Executive Council, county medical society officials will hear a series of brief talks on both the current and continuous organizational issues which will arise during the year. In the afternoon, there will be a symposium on federal legislation. It is expected that out-of-state speakers will be present for the meeting, but plans as yet are incomplete.

Teachers Visit Central Office

On Austin's Business-Industry-Education day in October, members of the Texas Medical Association's central office staff were hosts to ten teachers in the Austin elementary schools. The work in each department was explained with emphasis on how the State Association programs and services affect the work of teachers and the general well-being of the public. Two motion pictures were included in the program, and lunch was served.

TUBERCULOSIS PROGRAMS AVAILABLE

The Texas Medical Association's Committee on Tuberculosis has prepared several programs on tuberculosis for county society meetings, and has offered to supply speakers, films, or the popular symposium-type program. Topics include recent developments in the proper use of chemotherapeutic drugs and information on the criteria for surgical treatment of tuberculosis. The Association's central office staff, 1801 North Lamar Boulevard, Austin, will arrange such a program for county societies wishing to sponsor one.

AMERICAN MEDICAL ASSOCIATION

BOSTON CLINICAL MEETING

Texas delegates and alternate delegates who will attend the American Medical Association's clinical meeting will be Drs. T. C. Terrell, Fort Worth; M. O. Rouse, Dallas; J. B. Copeland, San Antonio; A. C. Scott, Jr., Temple; Robert W. Kimbro, Cleburne; L. C. Heare, Port Arthur; and James H. Wooten, Jr., Columbus. The meeting will be in Boston, November 29 through December 2.

The Registration Bureau will be located at the entrance to Mechanics Hall, and will be open all day Tuesday, Wednesday, and Thursday, and until noon on Friday. General headquarters will be Mechanics Hall, where the scientific meetings will be held, but the House of Delegates will meet at 10 a. m. Tuesday, November 29, at the Hotel Statler.

The Eighth Annual Public Relations Conference, preceding the Clinical Meeting, will be held November 28, and Dr. Dwight H. Murray, President-Elect of the AMA, will be the keynote speaker.

Entertainment during the clinical meeting will include a special concert by the Boston Symphony Orchestra, a luncheon for women physicians, and a showing of a collection of medical art by Rembrandt, Daumier, Hogarth, Toulouse-Lautrec, and other masters depicting the practice of medicine over the centuries. An official postconvention tour of the Bahama Islands, which will leave December 2 and return to Miami December 10, has been arranged for physicians who wish to combine a vacation with the scientific meeting.

Four resolutions will be introduced to the House of Delegates by the delegation from Texas. The first, in essence, expresses approval of the announced policy of the National Foundation for Infantile Paralysis to return to devoting its funds to proper research and to assistance in the actual care of patients disabled by poliomyelitis, and further resolves that the AMA House of Delegates recommend further purchase and distribution of Salk vaccine to be carried on by presently available commercial avenues.

The second resolution suggests that the AMA prepare and financially support a test case of the present doctor draft law in order that a final judicial opinion be secured.

The third resolution expresses approval of the Mundt-Coudert amendment, and urges the Senate, the House of Representatives, and the individual states to consider it favorably.

The purpose of the fourth resolution is to commend the Sears-Roebuck Foundation for its "thoughtfulness and foresight in creating and sponsoring this worth-while project," that is, for making long-term loans available to doctors who are starting their practices.

Texans who are members of the AMA's official family are Dr. F. J. L. Blasingame, Wharton, Board of Trustees; Dr. C. T. Stone, Sr., Galveston, Council on Medical Education and Hospitals; Dr. A. C. Scott, Jr., Temple, Council on Medical Service; Dr. B. E. Pickett, Sr., Carrizo Springs, Council on Constitution and Bylaws; Dr. M. E. DeBakey, Houston, Council on Scientific Assembly; Dr. F. L. Butte, Dallas, Council on Rehabilitation; Dr. V. C. Baird, Houston, Council on Industrial Health; Dr. A. T. Stewart, Lubbock, Council on Rural Health; Dr. John K. Glen, Houston, Reference Committee on Insurance and Medical Serv-

ice; and Dr. Wooten, Reference Committee on Miscellaneous Business.

Dr. Jackson A. Smith, Houston, and Dr. Bruno Balke, Randolph Air Force Base, will appear on the scientific program. Texans who will have exhibits at the clinical meeting are Drs. John H. Moyer, Edward W. Dennis, and Ralph V. Ford, Houston, "Hypertension: Pharmacodynamics of Therapy," and Dr. Lawrence J. Milch, Randolph Air Force Base, "Lipoprotein Research."

The complete program of the forthcoming meeting appears in the October 29 issue of the *Journal of the American Medical Association.*

COUNTY SOCIETIES

Angelina County Society

July, 1955

In a special meeting in July, the Angelina County Medical Society adopted a resolution stating that the society did not collectively endorse the Salk vaccine, and that the decisions regarding vaccination would be a matter for parents and their individual family physicians to make.

Bastrop-Lee Counties Society

July, 1955

The Bastrop-Lee Counties Medical Society and Auxiliary held a dinner meeting early in July in Elgin. Mr. C. Lincoln Williston, Austin, Executive Secretary of the Texas Medical Association, spoke on medical practice and legislation.

Bell County Society

August 3, 1955

(Reported by J. B. Brown, Secretary)

Obesity: Theory and Practice—J. W. Goldzieher, San Antonio.

The Bell County Medical Society met in Temple on August 3 and heard the above scientific presentation. James C. Moore and Bert De Bord, Temple, and Harry Frey, Belton, were appointed members of the public school health committee.

October 5, 1955

(Reported by J. B. Brown, Secretary)

Primary Malignant Bone Tumors—H. H. Brindley, Temple.

Eight new members were elected to the Bell County Medical Society at its meeting October 5 in Temple. The society voted to go on record as disapproving a resolution by Webb-Zapata-Jim Hogg Counties Medical Society which opposed the efforts of the Joint Committee on Accreditation of Hospitals. Dr. Brindley presented the above scientific paper which he illustrated with slides.

Big Bend Counties Society

August 2, 1955

(Reported by D. J. Sibley, Jr., Secretary)

Injuries of Chest—Leo Villareal, El Paso.

The Big Bend Counties Medical Society held a dinner meeting on August 2, and Dr. Villareal presented the scientific program.

September 6, 1955

(Reported by D. J. Sibley, Secretary)

Problem of Sudden and Unexpected Death—F. P. Bornstein, El Paso.

Members of the Big Bend Counties Medical Society held a dinner meeting in Fort Stockton on September 6, after which the scientific program was presented.

October 4, 1955

(Reported by D. J. Sibley, Secretary)

The Big Bend Counties Medical Society met in Fort Stockton on October 4 and a dinner was held for the members and their wives. The professional program consisted of a presentation by Dr. John W. Pate, Alpine, of color slides which he had made during his residence in Europe, where he had gone for postgraduate study. He also showed scenic pictures made in Spain, Portugal, France, Switzerland, Italy, and Austria.

Brazoria County Society

September 29, 1955

(Reported by Carlos E. Fuste, Jr., Secretary)

Treatment of Tuberculosis—H. F. Carman, Dallas.

The Brazoria County Medical Society met in Freeport on September 29 and heard the above scientific program.

Harris County Society

September 14, 1955

(Reported by James Allen Chamberlin, Secretary)

The September 14 session of the Harris County Medical Society was a business meeting, and at that time, the word "white" was deleted from the society's bylaws relating to membership requirements. Eleven new members were elected.

October 12, 1955

(Reported by James Allen Chamberlin, Secretary)

Cancer Operation: General Principles—John V. Good, Dallas.

Changes in Handling Narcotic Prescriptions—Mr. C. A. Friloux, Assistant United States District Attorney, Houston.

On October 12, the members of the Harris County Medical Society heard the above program.

Harrison County Society

September 9, 1955

How Industry and the Medical Profession Are Involved in Workmen's Compensation—Mr. Richard Dallam, Longview.

The Harrison County Medical Society was entertained in Marshall September 9 by the Universal Match Corporation. The evening events included the above paper, dinner in the plant's cafeteria, and a tour of the plant's medical dispensary.

Hill County Society

September 13, 1955

(Reported by Dick Cason, Reporter)

Management of Streptococcal Infection and Its Complications (motion picture)—Courtesy of Wyeth Laboratories.

The Hill County Medical Society met in Hillsboro on September 13 and saw the above film. Plans were completed for the October meeting, at which time Dr. John S. Chapman, Dallas, will talk on "Tuberculosis in Childhood." Members of the Johnson and Navarro County Societies have been invited to attend this program.

October 4, 1955

(Reported by Dick Cason, Reporter)

Tuberculosis in Childhood—John S. Chapman, Dallas.

Following the above scientific report, physicians of the Hill County Medical Society discussed some of the aspects of tuberculosis control which should be more adequately handled in Texas. The society met in Hillsboro on October 4, and James H. Barnebee, Jr., and A. L. Grizzaffi, Corsicana, were guests from the Navarro County Medical Society.

Lamar County Society

September 1, 1955

(Reported by Harold E. Hunt, Secretary)

Surgery of Temporomandibular Region—Edward C. Hinds and Edward Armstrong, Dallas.

Eighteen members and five guests of the Lamar County Medical Society reconvened for the fall session in Paris on September 1. After a brief business meeting was held, the above scientific program was given.

LaSalle-Frio-Dimmit Counties Society

September 20, 1955

(Reported by Marion P. Primono, Secretary)

Meeting in Cotulla on September 20, members of the LaSalle-Frio-Dimmit Counties Medical Society heard Mr. C. Lincoln Williston, Executive Secretary of the Texas Medical Association, and Mr. Philip R. Overton, general counsel for the State Association. Mr. Williston spoke on the importance of the county societies in relation to the State Association, and Mr. Overton's address concerned malpractice and legal aspects of medicine.

Milam County Society

September 13, 1955

The Milam County Medical Society met in Rockdale on September 13. At the business and scientific session, there was a discussion of Salk vaccine, and members saw a film on mental health which was provided by the Texas Medical Association film library. Afterward, the doctors joined their wives for a dinner and social hour.

Nueces County Society

August 9, 1955

Antibiotic-Resistant Infections—Ellard M. Yow, Houston.

Meeting in Corpus Christi on August 9, the Nueces County Medical Society heard Dr. Yow's scientific presentation.

September 13, 1955

At the September 13 meeting of the Nueces County Medical Society in Corpus Christi, Senator William H. Shireman, District 20, spoke on medical legislation.

Potter County Society

October 10, 1955

(Reported by Mrs. Cassie Atherton, Executive Secretary)

Acute Injuries of Hand—John L. Bell, Chicago.

The Potter County Medical Society met in Amarillo on October 10. Following a dinner, plans were outlined for the society to participate in the Community Chest drive, and it was announced that two x-ray machines would be placed in the downtown area for the annual chest x-ray survey. Dr. Bell presented the above scientific program, and illustrated his talk with color slides.

San Patricio-Aransas-Refugio Counties Society

August 3, 1955

Rh Factor—Virginia Stovall, San Antonio.

The San Patricio-Aransas-Refugio Counties Medical Society met on August 3 at the home of Drs. John W. and Rose N. Tunnell, Taft. The above program was presented.

Tarrant County Society

August 2, 1955

(Reported by S. W. Wilson, Secretary)

Panel Discussion: Duodenal Ulcers—Ted Lace, Fort Worth, Moderator.

The Tarrant County Medical Society met in Fort Worth on August 2 and heard the above mentioned discussion. Members of the panel were Frank L. Bynum, J. Kenneth Wiggins, Robert Moreton, and Jack Lindsay. D. O. D. Ware was elected delegate to fill the vacancy left by the resignation of Holland T. Jackson.

September 6, 1955

(Reported by Stephen W. Wilson, Secretary)

Nobody's Welfare—Mr. Dick West, Dallas.

Godfrey Ranch, east of Grapevine, was the site of the September 6 joint dinner meeting of the Dallas and Tarrant Counties Medical Societies. The Dallas group was in charge of the program, and Mr. West, editorial writer for the Dallas News and radio commentator, was guest speaker.

September 21, 1955

(Reported by Stephen W. Wilson, Secretary)

The September 21 meeting of the Tarrant County Society was held in conjunction with the Tumor Clinic of the Southwest Regional Cancer Conference in Fort Worth. Guest speakers were Edgar L. Frazell, New York; John R. McDonald, Rochester, Minn.; and L. L. Robbins, Boston.

October 4, 1955

(Reported by Stephen W. Wilson, Secretary)

Panel Discussion: The Uterine Cervix—T. C. Terrell, Moderator.
Use and Abuse of Cytologic Studies—C. E. Gordon, Fort Worth.
Adequate Cervical Biopsy—Charles Ashworth, Fort Worth.
Interpretation of the Cervical Biopsy—John J. Andujar, Fort Worth.

The Tarrant County Medical Society met in Fort Worth on October 4 and heard the above discussions. Members voted to go on record as approving a resolution by the Webb-Zapata-Jim Hogg Counties Medical Society which opposes the efforts of the Joint Commission of Accreditation of Hospitals.

Tom Green-Eight County Society

September 5, 1955

(Reported by Sam H. Gainer, Secretary)

Clinical Experience with ACTH and Cortisone in Children—C. James Krafft, Dallas.

The Tom Green-Eight County Medical Society met on September 5 in San Angelo, and members heard the above scientific program. A committee was appointed to investigate a new system of making collections; the members are James N. White, chairman, Ray G. Boster and W. B. Butner, all of San Angelo.

Travis County Society

October 18, 1955

(Reported by C. H. McCuistion, Secretary)

Panel Discussion: Modern Concepts of Immunization Procedures—Clifford Thorne, Moderator.

Meeting in Austin on October 18, the Travis County Medical Society heard the above discussion by Dr. Thorne and other local pediatricians.

Wichita County Society

August 2, 1955

The Wichita County Medical Society held a called meeting on August 2 to discuss the poliomyelitis inoculation program for the county. The members decided to postpone action pending further information on the vaccine.

DISTRICT SOCIETIES

Fourth District Society

October 20, 1955

(Reported by J. B. Stephens, Secretary)

Fractures About Ankle—Louis J. Levy, Fort Worth.
Adolescent Acne—J. F. Mullins, Galveston.
Diagnosis and Management of Disease of Biliary Tract—Raymond L. Gregory, Galveston.
Management of Burns—T. G. Blocker, Galveston.
Diagnosis and Management of Lymphomas—Dr. Gregory.
Management of Hand Injuries—Dr. Blocker.
Common Conditions Seen in Back—Dr. Levy.
Ringworm Infections—Dr. Mullins.

Meeting in Brownwood on October 20, members of the Fourth District Medical Society heard the above outlined scientific program. In addition, J. Layton Cochran, San Antonio, President of the Texas Medical Association, was special guest speaker at a joint luncheon with the Woman's Auxiliary. About 50 attended the meeting, at which the following new officers were elected: J. B. Stephens, Bangs, president; Robert M. Arledge, San Angelo, vice-president; and Scott H. Martin, San Angelo, secretary-treasurer.

The next meeting will be held in San Angelo, but no date has been set.

Eighth District Society

September 16, 1955

The Eighth District Medical Society met in Galveston on September 16, and members were guests of the Galveston County Medical Society at a dinner that night. During the afternoon business session, members of the society took no formal action, but verbally agreed that doctors should not be compelled to join the social security program.

New officers for the coming year are Carlos Fuste, Alvin, president; Milton Loughlin, Sweeney, vice-president; and John Childers, Galveston, secretary-treasurer. Brazoria was selected as the meeting place for next year.

AUXILIARY SECTION

COUNTY AUXILIARIES

The *Navarro County Auxiliary* met on September 2 in the home of Mrs. A. L. Grizzaffi, Corsicana. Mrs. R. L. Campbell, Corsicana, was co-hostess. The program was presented by Mrs. F. W. Armstrong, Fort Worth, who gave a talk on the collection and care of old silver.

The *El Paso County Auxiliary* met in El Paso on October 6, and honored all new members. Clothing was collected for El Paso Child Welfare, and Mrs. W. R. Curtis gave a book review.

The *Taylor-Jones Counties Auxiliary* met September 13 in Abilene, and had as guests Mrs. Joseph H. McCracken, Jr., Dallas, President of the Woman's Auxiliary to the Texas Medical Association, and Mrs. W. Frank Armstrong, Fort Worth, chairman of the Fourteenth District Auxiliary. Mrs. McCracken spoke on public information and service, and Mrs. Armstrong spoke on the American Medical Education Fund.

The *Tarrant County Auxiliary* heard Col. M. L. Crimmins, USAF (Ret.), Fort Worth, speak on "A Plan for Survival" at the October 14 meeting. Colonel Crimmins is with the local Civil Defense group. On October 18, the *Tarrant County Auxiliary* raised funds for the American Medical Education Foundation by sponsoring a book review by Mrs. V. Y. Rejebian of Dallas.

Officers of the Woman's Auxiliary to Texas Medical Association: President, Mrs. Joseph H. McCracken, Jr., Dallas; President-Elect, Mrs. R. C. Bellamy, Liberty; First Vice-President, Mrs. Harold Lindley, Pecos; Second Vice-President, Mrs. William C. Barksdale, Borger; Third Vice-President, Mrs. Scott H. Martin, San Angelo; Fourth Vice-President, Mrs. L. L. D. Tuttle, Houston; Fifth Vice-President, Mrs. John C. Parsons, San Antonio; Treasurer, Mrs. J. C. Terrell, Stephenville; Recording Secretary, Mrs. Franklin Campbell, Fort Worth; Corresponding Secretary, Mrs. O. M. Marchman, Jr., Dallas; Publicity Secretary, Mrs. Joe Thorne Gilbert, Austin; Parliamentarian, Mrs. O. W. Robinson, Paris.

VISITATION SCHEDULE

Mrs. Joseph H. McCracken, Jr., Dallas, President of the Woman's Auxiliary to the Texas Medical Association, scheduled visits to 21 county auxiliaries between October 25 and December 16. She also attended the Chicago conference of the Woman's Auxiliary to the American Medical Association and the meeting of the Woman's Auxiliary to the Southern Medical Association in Houston.

Her schedule from November 22 to December 16 is as follows:

Nov. 22, Yoakum
Nov. 22, Weimar
Nov. 28, Wharton
Nov. 29, Angleton
Nov. 30, Victoria
Dec. 5, Jacksonville
Dec. 6, Henderson
Dec. 7, Tyler
Dec. 9, Fort Worth
Dec. 14, Ellis County
Dec. 16, Denton

DEATHS

J. E. JONES

Dr. Joseph Edward Jones died at his home in Waxahachie, Texas, on September 1, 1955, of a brain hemorrhage.

He was the son of Mr. and Mrs. Jasper Jones, and was born on November 4, 1887, in Hico. He attended Fort Worth University, then entered the old Physio-Medical College of Texas, Dallas. Dr. Jones completed his medical education at the Baylor University College of Medicine, Dallas, in 1914. Later in his career, he took several postgraduate courses.

Dr. Jones began his practice in Boyce, and remained there for four years before moving to Waxahachie, where he had practiced for 37 years. He was a member of the Ellis County Medical Society, the Fourteenth District Medical Society, the Texas Medical Association, and the American Medical Association. He had served on the city council and was a deacon in the First Baptist Church.

During World War I, Dr. Jones was a first lieutenant in the Army Medical Corps, and was stationed in Camp Kearney, Calif.

He and Miss Luda Laird were married on December 24, 1906, in Purves. Mrs. Jones survives, as do two daughters, Mrs. Romney Rudolph and Mrs. Wylie Motley, Waxahachie; four brothers, Robert Jones, Lubbock; Dee Jones and Leo Jones, Electra; and Herman Jones, Los Angeles; and two sisters, Mrs. J. F. Warren, Dublin; and Mrs. Charner Allen, Frederick, Okla.

An obituary ordinarily will not be published more than four months after date of death. Cooperation in reporting deaths of physicians and in furnishing appropriate biographical material promptly is solicited.

W. M. DICKENS

Dr. William Mason Dickens, chief medical officer of the Veterans Administration Regional Office, Waco, Texas, died of a coronary occlusion in a Brownwood hospital on July 28, 1955. He had started on a short business trip and had to stop at Brownwood after suffering a heart attack.

Dr. Dickens was born January 11, 1888, in Merit, and was the son of Samuel Marshall and Virginia Dee (Wilcoxson) Dickens. He attended North Texas State Normal College, Denton, and Grayson College, Whitewright, before entering the University of Tennessee School of Medicine, from which he was graduated in 1911. He interned in Roosevelt Hospital, New York, for a year and a half, then began his practice in Greenville, where he remained until 1941. At that time, he entered the Army Medical Corps and served in Camp Bowie, Camp Claiborne, La., and at the induction center in Houston. At the close of the war, when he was retired as a lieutenant colonel, he was named

a medical officer for the Veterans Administration and had been assigned to the regional office in Waco for several years. Dr. Dickens also served overseas in the Medical Corps during World War I.

Dr. Dickens was a member of the Texas Medical Association through the Hunt County Medical Society, of which he was president in 1941. He served as city health officer of Greenville for four years, and in 1937 he was appointed to the State Board of Health. He belonged to the Baptist Church.

He was interested in military affairs, and while practicing in Greenville he organized Company M, 144th Infantry of the National Guard, and served as captain of the company. He was active in American Legion work and had served as first vice-state commander and a member of the board of trustees. He enjoyed fishing and had spent leisure time on a farm recently purchased in Arkansas.

Dr. Dickens and Miss Vera Estelle Davis were married on June 30, 1914, in Farmersville; Mrs. Dickens died on September 30, 1942. Two children, Miss Betty J. Dickens, Waco, and Dr. William R. Dickens, Cincinnati, Ohio, and three grandchildren, survive.

E. B. BRANNIN

Dr. Edward Bacon Brannin, Dallas, Texas, died in a local hospital on September 13, 1955.

Dr. Brannin was born on September 19, 1886, in Cisco, and was the son of Lewis Edward and Katie Bacon Brannin. He was graduated from Texas Christian University, then in Waco, in 1905, then spent two years in the old Fort Worth Medical College, Fort Worth. Dr. Brannin completed his medical education at the Tulane University School of Medicine, New Orleans, in 1909, and had practiced medicine in Dallas since that time. He took postgraduate work at Johns

DR. EDWARD BACON BRANNIN

Hopkins University School of Medicine, Baltimore, and at Mount Sinai Hospital, New York, specializing in gynecology and endocrinology.

He was a member of the Texas and American Medical Associations through the Dallas County Medical Society, and also was a member of the Dallas Southern Clinical Society and Phi Chi medical fraternity. Dr. Brannin's membership in other organizations included Phi Delta Theta social fraternity, Rotary International, the Dallas Athletic Club, and the Community Church.

During World War I, he was a first lieutenant in the Army Medical Corps, and was stationed in Deming, N. Mex., and Camp Funston, Kan.

Miss Mary Fidelia Skiles and Dr. Brannin were married on July 3, 1911, in Sherman. Mrs. Brannin survives, as do two daughters, Mrs. Arch J. McNeill and Mrs. E. Martin Caldwell, both of Dallas; two sisters, Mrs. Elizabeth B. Schneider, Washington, D. C., and Mrs. D. D. Templeton, DeWitt, N. Y.; and four brothers, Dr. Dan Brannin and C. P. Brannin, both of Dallas; Louis D. Brannin, Ramona, Okla.; and R. C. Brannin, Great Bend, Kan.

J. S. KIRKPATRICK

Dr. Joe Stewart Kirkpatrick, Fort Worth, Texas, died on September 6, 1955.

He was born December 23, 1915, in Winchester, Ohio, and was the son of Earl and Lida Kirkpatrick. He attended high school in Columbus, Ohio, then entered Ohio State

DR. JOE STEWART KIRKPATRICK

University, Columbus, and received his bachelor of arts degree in 1938. Prior to his entry in medical school, he was employed by General Motors in Flint and Detroit, Mich., as an insurance investigator.

In 1945, Dr. Kirkpatrick entered Ohio State University Medical School, Columbus, from which he was graduated in 1949. Dr. Kirkpatrick did his internship and residency in Harris Hospital, Fort Worth. He practiced in Fort Worth from 1951 until the time of his death, and was a member of the Tarrant County Medical Society, Thirteenth District Medical Society, Texas Medical Association, American Medical Association, Fort Worth Internist Club, and Alpha Omega Alpha honorary medical fraternity.

He was married on April 16, 1942, to Miss Frieda R. Materna in Flint, Mich. He is survived by Mrs. Kirkpatrick, two sons, Joel David, 5, and Michael Stephen, 3; his mother, Mrs. Lida McMeekin, Worthington, Ohio; one brother, Philip Kirkpatrick, New Orleans; and three sisters, Mrs. Fred B. Smith, Worthington, Ohio; Mrs. John Neff, Chicago; and Mrs. O. R. Edgington, Englewood, Ohio.

R. Q. HUNTER

Dr. Rush Quinn Hunter, Palestine, Texas, died in a local hospital September 19, 1955.

He was born in Bullard on December 10, 1897, and was the son of Dr. Ripley Hayes and Bernice (Jones) Hunter. He attended Lon Morris College in Jacksonville, then went to Southern Methodist University, from which he was graduated in 1918. He received his medical degree at the University of Texas Medical Branch in 1922. After interning in the John Seaiy Hospital, Galveston, he served a residency in the Missouri Pacific Railroad Hospital in Palestine, and began his practice in that town. In partnership with his brother, Dr. R. H. Hunter, and a nephew, Dr. R. H. Kay, he owned and operated the Hunter-Hunter-Kay Clinic in Palestine until the time of his death.

Dr. Hunter was a member of the Texas and American Medical Associations through the Anderson-Houston-Leon Counties Medical Society, of which he had been a member continuously since 1925 and was president in 1936. He also was a member of the Eleventh District Medical Society, Alpha Kappa Kappa medical fraternity, Rotary International, the Masonic Lodge, and the Methodist Church. He was a fellow of the American College of Surgeons and chief of staff of the Memorial Hospital. From 1918 until 1920, Dr. Hunter was a member of the Reserve Officers Training Corps.

DR. RUSH QUINN HUNTER

On September 17, 1924, Dr. Hunter and Miss Aline West were married in Bay City. Mrs. Hunter and two children, Mrs. Mary Martha Styner and Rush Quinn Hunter, Jr., both of Austin, survive as do five sisters, Mrs. L. F. Kay, Mrs. Hunt Graham, and Mrs. Ray Smith, all of Tyler; Mrs. N. C. Garrison, Garrison; and Mrs. Charles R. Guinn, Waco; and one brother, Dr. R. H. Hunter, Palestine.

B. W. ALLEN

Dr. Burton Watson Allen, Dallas, died on September 19, 1955, in a local hospital.

Dr. Allen, son of Mr. and Mrs. James M. L. Allen, was born in Edwardsville, Ala., on December 15, 1893. He received his bachelor of science degree from East Texas State Teachers College, Commerce, and was graduated from Baylor University College of Medicine, Dallas, in 1931. Following an internship in Providence Hospital, Waco, he began his medical practice in Dallas, but after a brief stay there he moved to Mabank. In 1938, Dr. Allen returned to Dallas where he was in active practice until the time of his death.

He was a member of the Dallas County Medical Society, the Texas Medical Association, the American Medical Association, the American Academy of General Practice, the Christian Church, and the Masonic Lodge.

Dr. Allen was married on June 16, 1918, in Mabank to Miss Roberta White.

Survivors include Mrs. Allen; a daughter, Mrs. Homer A. Taylor, Houston; four sisters, Mrs. Stephen Clay, Dallas; Mrs. Annie Sharpless, Waco; Mrs. Mary Jo Haskin, Overton; and Mrs. Wade Pipes, Shodurant, La.; two brothers, Cornelius Allen, Delhi, La.; and J. Alexander Allen, Choccolocco, Ala.; and two granddaughters.

H. H. BOEHNING

Dr. Harold H. Boehning, senior physician at Abilene State Hospital, died in Dallas, Texas, on August 31, 1955. He had gone to Dallas for a vacation and to visit with his daughters who live there.

Dr. Boehning was born on December 13, 1893, in Elgin, Ill., and moved to Canyon, Texas, when he was 11. After attending Clarendon College, he entered Southern Methodist University, Dallas, from which he received his bachelor of arts degree in 1923. In 1927, he was graduated from the Baylor University College of Medicine, Dallas.

Miss Grace Clark, a nursing student, and Dr. Boehning were married on July 3, 1928. After they completed their training, they went to Korea as medical missionaries of the Methodist Church and remained there until 1940, when they returned to the United States. It was then that Dr. Boehning joined the staff of the Abilene State Hospital. He was appointed assistant superintendent in 1943.

DR. H. H. BOEHNING

Survivors include Mrs. Boehning; a son, Dr. Harold Clark Boehning, now stationed in Fort Bliss; two daughters, Mrs. Richard Archer and Mrs. Robert Clawson, both of Dallas; five brothers, Clarence W. H., Abilene; Walter, Canyon; Alvin, Amarillo; Willard, Wildorado; and Kenneth, Omaha, Neb.; and one sister, Mrs. Ester Sembritzke, Clyde.